Bangladesh-Needs

Needs No.	Question	Answer
1	**1) Content of training/education**	Development of environmental radiation monitoring around nuclear facility
	2) What is behind above need	To acquire knowledge on development of environmental radiation monitoring around nuclear facility
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☑ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
2	**1) Content of training/education**	Transportation security for the radioactive waste
	2) What is behind above need	To provide participants in implementing maintaining or enhancing a nuclear security regime to protect radioactive waste while in transport against the theft, sabotage or other malicious acts and unacceptable radiological consequences
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☑ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
3	**1) Content of training/education**	Safety Assessment of Radioactive Waste
	2) What is behind above need	To learn methods of Safety Assessment of radioactive waste
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
4	**1) Content of training/education**	Radioactive Waste Management at NPP
	2) What is behind above need	To acquire basic knowledge and hand-on experience on various aspect of radioactive wastes management at NPP level which include collection, treatment, conditioning and storage before send to disposal facility
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
5	**1) Content of training/education**	Pre-disposal of Radioactive waste management
	2) What is behind above need	To acquire basic knowledge and hand-on experience on various aspect of pre-disposal radioactive wastes management which include collection, treatment, conditioning storage before send to disposal facility
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
6	**1) Content of training/education**	Radioactive Waste treatment
	2) What is behind above need	To acquire knowledge on radioactive waste treatment
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
7	**1) Content of training/education**	Radioactive waste disposal
	2) What is behind above need	To acquire knowledge on radioactive waste disposal
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
8	**1) Content of training/education**	Near Surface disposal facilities
	2) What is behind above need	To acquire knowledge for the Development of near surface disposal facilities
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
9	**1) Content of training/education**	Application of Radiotracer Technology in Industry and Environment
	2) What is behind above need	To acquire knowledge on Different radiotracer techniques
	3) Field	☐ A. Radioactive Waste Management ☑ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
10	**1) Content of training/education**	Environmental study of Actinide series elements
	2) What is behind above need	To acquire knowledge on the analysis of Actinide series elements
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
11	**1) Content of training/education**	Application of radioisotopes in organic analysis
	2) What is behind above need	To acquire knowledge on the application of RI to study organic compounds in human and other environmental samples
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
12	**1) Content of training/education**	Determination of age of different fossil fuels using Radioisotopes/Radiocarbon dating of different archaeological samples
	2) What is behind above need	To acquire knowledge on the application of RI to study the ages of different archaeological samples
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☑ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
13	**1) Content of training/education**	Radiation Isotope Application for Environment
	2) What is behind above need	To acquire knowledge on Application of radio isotope in environment; Using environmental RI and artificial RI to find out the causes of surface water and groundwater pollution and climate change; and Tracers application for water sources monitoring
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
14	**1) Content of training/education**	Radionuclide transport study
	2) What is behind above need	To acquire knowledge and gain experience on hydrogeological data assessment and transport of radionuclide
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Modeling, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
15	**1) Content of training/education**	Groundwater Modeling and Age determination
	2) What is behind above need	To acquire knowledge on groundwater modeling, particle transport and simulation of groundwater age
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Computer Modeling, etc
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
16	**1) Content of training/education**	Analysis of the effect of radiation at molecular stage on mutation induction by carbon ion beam irradiated in plant cell
	2) What is behind above need	To acquire knowledge on the effect of radiation at molecular stage on mutation induction by carbon ion beam irradiated in plant cell
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
17	**1) Content of training/education**	Development of DNA markers to determine and improve the efficiency of radiation-induced plant in mutation breeding
	2) What is behind above need	To acquire knowledge on Development of DNA markers to determine and improve the efficiency of radiation – induced plants in mutation breeding.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
18	**1) Content of training/education**	Application of carbon ion beam irradiation on plants in investigate DNA damage and DNA repairing
	2) What is behind above need	To acquire knowledge on carbon ion beam irradiation on plants to investigate DNA Damage and DNA repairing
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
19	**1) Content of training/education**	Isolation of N2-fixing microorganisms (biofertilizer) and improvement of N2-fixing potency improvement by radiation
	2) What is behind above need	To obtain knowledge on screening of biofertilizer and their strain improvement by Gamma radiation
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
20	**1) Content of training/education**	Bioconversion of agricultural and agro-industrial wastes into food/feed/ Fuel and their quality improvement by gamma radiatio
	2) What is behind above need	To acquire knowledge on nuclear application in bioconversion of agricultural and agro-industrial wastes
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
21	**1) Content of training/education**	Hygienization and radiation preservation of food and food products and Preparation of sterile foods for immune-compromised patients and other related target groups
	2) What is behind above need	To acquire knowledge on food irradiation for improvement of hygienic quality and shelf life extension of food
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
22	**1) Content of training/education**	Isolation of microorganism capable of degrading environmental pollutants and strain improvement by gamma radiation
	2) What is behind above need	To acquire knowledge on microbiological along with nuclear application in controlling environmental pollution
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
23	**1) Content of training/education**	To detect/trace the mutation in DNA of microorganisms caused by gamma radiation
	2) What is behind above need	To improve skills on detection/tracing radiation-induced mutation in microbial gene
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
24	**1) Content of training/education**	Development of stress tolerant microorganisms biofertilizer by radiation induced DNA mutation and analysis of molecular alteration
	2) What is behind above need	To acquire knowledge on molecular effect of radiation on microorganisms to produced stress tolerant variety
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	To acquire knowledge on molecular effect of radiation on microorganisms to produced stress tolerant variety
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
25	**1) Content of training/education**	Studies on the biological effect of radiation at cellular and molecular level
	2) What is behind above need	To acquire knowledge on biological effect of radiation at cellular and molecular level.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
26	**1) Content of training/education**	Screening and identification of toxic element in foods using nuclear and chromatographic techniques
	2) What is behind above need	To acquire knowledge Nuclear and chromatographic techniques used for identification of toxic elements in foods
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
27	**1) Content of training/education**	Trace Elements/Heavy Metals in Food and Environment
	2) What is behind above need	To acquire knowledge on trace Elements/ Heavy Metals in Food and Environment
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
28	**1) Content of training/education**	Insect pest control using nuclear technique (SIT)
	2) What is behind above need	To acquire knowledge on latest Sterile insect Technique (SIT) for pest control
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
29	**1) Content of training/education**	Pesticide and Contaminants in Food and Environment
	2) What is behind above need	To acquire knowledge on Pesticide and Contaminants in Food and Environment
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
30	**1) Content of training/education**	To study on radiation effects at molecular level (radiation impact studies) in food
	2) What is behind above need	Assessment of effects of low dose radiation and radionuclides in food
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
31	**1) Content of training/education**	Neutron Beam Application (Scattering)
	2) What is behind above need	To acquire knowledge on reactor based neutron beam application specially, in the field of neutron scattering and to train up the young scientists for the development of sustainable human resource in the field of neutron scattering
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☑ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
32	**1) Content of training/education**	Neutron Beam Application (Radiography)
	2) What is behind above need	To acquire knowledge on reactor based neutron beam application in the field of neutron radiography and to train up the young scientists for the development of sustainable human resource in the field of neutron radiography
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☑ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
33	**1) Content of training/education**	Neutron Beam Application (Neutron Activation)
	2) What is behind above need	To acquire knowledge in the field of reactor based neutron activation analysis and to train up the young scientists for the development of sustainable human resource in the field of neutron radiography activation analysis
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☑ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
34	**1) Content of training/education**	Agricultural Application
	2) What is behind above need	To train up manpower on the preparation, characterization and application of oligosaccharide (Chitosan, Alginate etc.) as plant growth promoter. To train up manpower on the synthesis and characterization of super water absorbent for the application of soil conditioning
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
35	**1) Content of training/education**	Medical Applications (characterization of hydrogel)
	2) What is behind above need	To train up manpower on the preparation, characterization of hydrogel for medical application.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☑ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
36	**1) Content of training/education**	Medical Application of Radio-isotopes
	2) What is behind above need	To acquire knowledge on medical application of radio-isotopes in medical fields
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☑ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
37	**1) Content of training/education**	Radiation Treatment
	2) What is behind above need	Nuclear oncology Specially Therapeutic use of radiolabelled antibodies
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☑ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
38	**1) Content of training/education**	Radiation Treatment
	2) What is behind above need	Molecular technique of identifying mutants and species specially diagnosis of medullary thyroid carcinoma.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☑ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
39	**1) Content of training/education**	Research Reactor Experiment
	2) What is behind above need	Measurement of control rod worth, reactor power calibration, reactor neutronic parameters, criticality test, etc.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
40	**1) Content of training/education**	Ageing Management of the Research Reactor
	2) What is behind above need	Training on life assessment of reactor core internals and implementation of systematic ageing management program for research reactor
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
41	**1) Content of training/education**	In-service Inspection of the Research Reactor
	2) What is behind above need	Training on Vibration analysis of rotating machineries of reactor cooling systems and ultrasonic testing equipment for inspection of reactor tank thickness and flaw.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
42	**1) Content of training/education**	Reactor Operation Maintenance
	2) What is behind above need	To acquire knowledge on reactor operation, maintenance and troubleshooting of the digital instrumentation and control system of the reactor
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
43	**1) Content of training/education**	Nuclear data processing for neutronic analysis and fission product inventory
	2) What is behind above need	
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Ph.D, Fellowship, etc
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
44	**1) Content of training/education**	Conceptual design (Neutronic & Thermal Hydraulics) study for multipurpose test/research reactor
	2) What is behind above need	
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Ph.D, Fellowship, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
45	**1) Content of training/education**	LOCA analysis using RELAP5
	2) What is behind above need	
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Training, Practice, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
46	**1) Content of training/education**	Safety Analysis through RIA, LOFA simulation
	2) What is behind above need	
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Research, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
47	**1) Content of training/education**	BDBA (Beyond Design Basis Accident) / Severe accident analysis
	2) What is behind above need	
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☑ D. Nuclear Power Reactor ☑ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Research, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
48	**1) Content of training/education**	Nuclear reactor structural material properties study using computer codes under neutron irradiations
	2) What is behind above need	
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Ph.D., Fellowship, etc
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
49	**1) Content of training/education**	Development of Instrumental Facilities for Radiation Area Monitoring around RNPP
	2) What is behind above need	To acquire knowledge and skills on development of instrumental facilities for radiation area monitoring
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☑ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
50	**1) Content of training/education**	Geological evaluation of nuclear power plant site
	2) What is behind above need	To acquire knowledge on Geological studies for nuclear power plant site characterization
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
51	**1) Content of training/education**	Reactor decommissioning
	2) What is behind above need	To acquire knowledge on reactor decommissioning
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
52	**1) Content of training/education**	Decommissioning of Nuclear or Radiological Facilities
	2) What is behind above need	To acquire knowledge on generally accepted decommissioning process, such as immediate dismantling deferred dismantling and entombment
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
53	**1) Content of training/education**	Fuel Cycle
	2) What is behind above need	To acquire knowledge on fuel cycle
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☑ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
54	**1) Content of training/education**	Transportation of fuel/material
	2) What is behind above need	To acquire knowledge on transportation of fuel/material
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
55	**1) Content of training/education**	Nuclear safety culture
	2) What is behind above need	To acquire knowledge on nuclear safety culture
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☑ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
56	**1) Content of training/education**	Emergency Preparedness & Response
	2) What is behind above need	To acquire knowledge on various aspects of emergency preparedness and response: * Understanding of IAEA Guidelines and International Nuclear Event Scale (INES) * Appreciation of preparedness and response function * Local emergency preparedness and response team organization * Generic Intervention Levels * Generic Action Levels * Emergency Worker Guidelines/Guidance * Operational Intervention Levels * Urgent Protective Action * Emergency Management& Decision making techniques * Technical preparedness and response
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☑ E-1. Nuclear Safety ☑ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
57	**1) Content of training/education**	Internal Exposure Assessment
	2) What is behind above need	Rapid Measurement technique for emergency purpose
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☑ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
58	**1) Content of training/education**	Radiation protection in nuclear power plant
	2) What is behind above need	Radiation safety, area monitoring, area classification, emergency plan and preparedness
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☑ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
59	**1) Content of training/education**	Radiation instrumentation
	2) What is behind above need	To train personnel in nuclear Safety and radiation protection
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☑ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
60	**1) Content of training/education**	Environmental and radionuclide monitoring
	2) What is behind above need	Monitoring of radio-nuclides in the environment
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☑ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
61	**1) Content of training/education**	Radiation effect
	2) What is behind above need	To train personnel in radiation biology
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☑ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
62	**1) Content of training/education**	Risk assessment of nuclear power plant severe accidents (including consequence analysis)
	2) What is behind above need	Analysis methods involving NPP accidents (level 1-3 probabilistic risk assessment, consequence analysis) cost-benefit analysis for radiation protection countermeasures
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
63	**1) Content of training/education**	Application and Standards of Radiation Protection
	2) What is behind above need	To acquire knowledge on Dosimetry, Calibration of Radiation Monitoring devices, and QA Services
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☑ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
64	**1) Content of training/education**	Nuclear Risk management/communication
	2) What is behind above need	To acquire knowledge and skills on nuclear risk management/communication for supporting staff.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☑ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
65	**1) Content of training/education**	Nonproliferation and safeguards
	2) What is behind above need	To acquire knowledge and skill on nonproliferation and safeguards.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☑ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
66	**1) Content of training/education**	Nuclear material control and accounting
	2) What is behind above need	To acquire knowledge and skills on Nuclear material control and accounting.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☑ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
67	**1) Content of training/education**	Public Information and Public acceptance
	2) What is behind above need	To acquire knowledge and skills to protect propaganda for nuclear power/NPP
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☑ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, etc
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
68	**1) Content of training/education**	Nuclear Project Management and Monitoring for Supporting Staff
	2) What is behind above need	To acquire knowledge and skills on Nuclear Project Management and Monitoring
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☑ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, etc
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
69	**1) Content of training/education**	Nuclear Law
	2) What is behind above need	To acquire knowledge and skills on Nuclear Law
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☑ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
70	**1) Content of training/education**	Development of Customized Instrumental Facilities using FPGA for Nuclear and Analytical Research
	2) What is behind above need	To acquire knowledge and skills on development of instrumentation using FPGA
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☑ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
71	**1) Content of training/education**	Development of Radiation Detector and Signal Processing System
	2) What is behind above need	To acquire knowledge and skills on development of new radiation detectors, behavior and application for radiation detection and the connected hard ware for signal processing
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☑ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
72	**1) Content of training/education**	Repair, Maintenance and Refurbishment of Nuclear Instrumentation
	2) What is behind above need	To acquire knowledge and skills on Repair, maintenance and refurbishment of Nuclear Instrumentation
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☑ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
73	**1) Content of training/education**	Determination of Radioisotopes
	2) What is behind above need	To acquire knowledge for determination of radioisotopes using ICP-MS Technique
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☑ G. Others
	4) Level	☑ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
74	**1) Content of training/education**	Nuclear Minerals Exploration
	2) What is behind above need	To train personnel in nuclear mineral exploration techniques
	3) Field	☐ A. Radioactive Waste Management ☑ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	Lecture, Practice, Facility Visit, etc.
	7) Possible duration and method	
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
75	**1) Content of training/education**	Ion beam application for environmental studies and nuclear reaction studies
	2) What is behind above need	To acquire knowledge on elemental analysis in environmental samples and on charge particles induced nuclear reactions
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☑ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
76	**1) Content of training/education**	Theoretical and Computational Research on Fusion Plasma
	2) What is behind above need	To acquire knowledge on theoretical and computational research on fusion plasma
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☑ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Training, Research
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
77	**1) Content of training/education**	Dense Plasma Focus Device: Production, Diagnosis and Modeling
	2) What is behind above need	To acquire knowledge on Production, Diagnosis and Modeling of the plasma in dense plasma focus device
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☑ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Training, Research
	8) Profession, career, number of possible trainees	

Indonesia-Needs

Needs No.	Question	Answer
1	**1) Content of training/education**	Safety assessment, engineering, safety engineering, reactor behaviour, reactor physics, water chemistry, instrumentation, decommisioning, fuel material
	2) What is behind above need	Enhancing knowledge and ecperience for reactor workforces
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	1
	7) Possible duration and method	Training (2 weeks) Or OJT (1 – 2 months)
	8) Profession, career, number of possible trainees	Research Reactor Operator (2 – 3 persons)

Needs No.	Question	Answer
2	**1) Content of training/education**	Implementation of aging management on Interim Storage for Spent Fuel
	2) What is behind above need	To acquire knowledge on impelemtation of aging management on Interim Storage for Spent Fuel
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	2
	7) Possible duration and method	Training (2 weeks) Or OJT (1 – 2 months)
	8) Profession, career, number of possible trainees	Staffs of Radioactive Waste Management

Needs No.	Question	Answer
3	**1) Content of training/education**	Development of environmental radiation monitoring around nuclear facility
	2) What is behind above need	To acquire knowledge on development of environmental radiation monitoring around nuclear facility
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	5
	7) Possible duration and method	Training (2 weeks) Or OJT (1 – 2 months)
	8) Profession, career, number of possible trainees	Staffs of Radioactive Waste Management

Needs No.	Question	Answer
4	**1) Content of training/education**	Development of radioactive waste management information system
	2) What is behind above need	To acquire knowledge on development of radioactive waste management information system
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	7
	7) Possible duration and method	Training (2 weeks) Or OJT (1 – 2 months)
	8) Profession, career, number of possible trainees	Staffs of Radioactive Waste Management

Needs No.	Question	Answer
5	**1) Content of training/education**	Radioactive waste management (including contaminated waste management, DSRS management, SNF management and Transportation)
	2) What is behind above need	To acquire knowledge on development of radioactive waste management
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	9
	7) Possible duration and method	Training (2 weeks) Or OJT (1 – 2 months)
	8) Profession, career, number of possible trainees	Staffs of Radioactive Waste Management

Needs No.	Question	Answer
6	**1) Content of training/education**	Radioactive waste disposal programme
	2) What is behind above need	To acquire knowledge on development of radioactive waste disposal
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	12
	7) Possible duration and method	Training (2 weeks) Or OJT (1 – 2 months)
	8) Profession, career, number of possible trainees	Staffs of Radioactive Waste Management

Needs No.	Question	Answer
7	**1) Content of training/education**	Marine radioecology
	2) What is behind above need	To acquire knowledge on development of marine radioecology
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	
	7) Possible duration and method	Training (2 weeks) Or OJT (1 – 2 months)
	8) Profession, career, number of possible trainees	Staffs of Radioactive Waste Management

Needs No.	Question	Answer
8	**1) Content of training/education**	**Uranium Thorium Oxide fabrication for advanced reactor**
	2) What is behind above need	to increase the knowledge capability, self confidence, knowledge preservation and to achieve the internal target. The goal is elaborate joint research and participation in international forum
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	3
	7) Possible duration and method	OJT (3 months)
	8) Profession, career, number of possible trainees	Staffs of Nuclear Fuel Fabrication Staff (2 persons)

Needs No.	Question	Answer
9	**1) Content of training/education**	**Destructive and non destructive quality control for nuclear fuel fabrication**
	2) What is behind above need	to increase the knowledge capability, self confidence, knowledge preservation and to achieve the internal target. The goal is elaborate joint research and participation in international forum
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	6
	7) Possible duration and method	OJT (3 months)
	8) Profession, career, number of possible trainees	Staffs of Nuclear Fuel Fabrication Staff (2 persons)

Needs No.	Question	Answer
10	**1) Content of training/education**	**LEU for research reactor fabrication**
	2) What is behind above need	to increase the knowledge capability, self confidence, knowledge preservation and to achieve the internal target. The goal is elaborate joint research and participation in international forum
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	8
	7) Possible duration and method	OJT (3 months)
	8) Profession, career, number of possible trainees	Staffs of Nuclear Fuel Fabrication Staff (2 persons)

Needs No.	Question	Answer
11	**1) Content of training/education**	**the new material structure for high burn up nuclear fuel and minimizing the nuclear waste**
	2) What is behind above need	to increase the knowledge capability, self confidence, knowledge preservation and to achieve the internal target. The goal is elaborate joint research and participation in international forum
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	11
	7) Possible duration and method	OJT (3 months)
	8) Profession, career, number of possible trainees	Staffs of Nuclear Fuel Fabrication Staff (2 persons)

Needs No.	Question	Answer
12	**1) Content of training/education**	**advanced technology in sintering for nuclear fuel**
	2) What is behind above need	to improve the fabrication process by low temperature sintering process
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	4
	7) Possible duration and method	OJT (3 months)
	8) Profession, career, number of possible trainees	Staffs of Nuclear Fuel Fabrication Staff (2 persons)

Malaysia-Needs

Needs No.	Question	Answer
1	1) Content of training/education	Radioactive Waste Management at NPP
	2) What is behind above need	To acquire basic knowledge and hand-on experience on various aspect of radioactive wastes management at NPP level which include collection, treatment, conditioning and storage before send to disposal facility.
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	1st
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	3 Research Officer

Needs No.	Question	Answer
2	1) Content of training/education	Safety assessment of near surface disposal facility
	2) What is behind above need	To acquire knowledge and gain experience to do safety assessment of near surface disposal facility including the use of several computer code and calculation.
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	2nd
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc
	8) Profession, career, number of possible trainees	3 Research Officer

Needs No.	Question	Answer
3	1) Content of training/education	Site characterization for near surface disposal facility
	2) What is behind above need	To acquire knowledge and gain hand-on experience on site characterization of near surface disposal facility.
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	3rd
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	3 Research Officer

Needs No.	Question	Answer
4	1) Content of training/education	Radionuclide transport study
	2) What is behind above need	To acquire knowledge and gain experience on hydrogeological data assessment and transport of radionuclide.
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	4th
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	3 Research Officer

Needs No.	Question	Answer
5	1) Content of training/education	Pre-disposal of Radioactive waste management
	2) What is behind above need	To acquire basic knowledge and hand-on experience on various aspect of pre-disposal radioactive wastes management which include collection, treatment, conditioning and storage before send to disposal facility.
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	5th
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc
	8) Profession, career, number of possible trainees	3 Research Officer

Needs No.	Question	Answer
6	1) Content of training/education	Design of repository
	2) What is behind above need	To acquire basic knowledge about to design of repository, multi-barriers concept, materia used etc.
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☐ Go to abroad ☐ Invite foreign expert
	6) Priority	6th
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc
	8) Profession, career, number of possible trainees	3 Research Officer

Needs No.	Question	Answer
7	1) Content of training/education	Radiation processing of nano material for industrial application
	2) What is behind above need	To produce advance material based on nano and radiation processing technology for composite, automotive and coating industries
	3) Field	☐ A. Radioactive Waste Management ☑ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	1st
	7) Possible duration and method	OJT with laboratory research activity
	8) Profession, career, number of possible trainees	7 research officer with MSc and PhD education and minimum 10 years research experience in this field

Needs No.	Question	Answer
8	1) Content of training/education	Assessment of low level radiation effects on biota
	2) What is behind above need	Evaluate potential indicator organisms
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	1st
	7) Possible duration and method	3 to 6 months OJT; 2 weeks expert services to assist in workshop
	8) Profession, career, number of possible trainees	4 Researchers

Needs No.	Question	Answer
9	1) Content of training/education	Bifunctional radioisotopic approach for the diagnosis and treatment of cancers using nanoparticulate-based platform
	2) What is behind above need	To develop a bifunctional nanoparticulate-based system for the diagnosis and treatment of cancer
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☑ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	1st
	7) Possible duration and method	OJT with laboratory research activity
	8) Profession, career, number of possible trainees	1 research officer with PhD qualification and 5 years experience in this research field

Needs No.	Question	Answer
10	1) Content of training/education	Radiation processing of polymeric material for drug delivery system in healthcare application
	2) What is behind above need	To develop product in the form of nano gel to be use in drug delivery system and scarfold in tissue engineering for healthcare industry
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☑ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	1st
	7) Possible duration and method	OJT with laboratory research activity
	8) Profession, career, number of possible trainees	4 research officer with MSc and PhD education and minimum 10 years research experience in this field

Needs No.	Question	Answer
11	1) Content of training/education	Radiation grafting on polymeric material especially on natural polymer for environmental applicaiton
	2) What is behind above need	To produce of polymeric adsorbent material for extraction of toxic and heavy metals and treatment of industrial waste water
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	1st
	7) Possible duration and method	OJT with laboratory research activity
	8) Profession, career, number of possible trainees	5 research officer with MSc and PhD education and minimum 10 years research experience in this field

Needs No.	Question	Answer
12	1) Content of training/education	Bioaccumulation of radionuclides in foodweb
	2) What is behind above need	Support current project on biodiversity and radiology at nuclear/radioactive based facilities
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	2nd
	7) Possible duration and method	3 to 6 months OJT; 2 weeks expert services to assist in workshop
	8) Profession, career, number of possible trainees	2 Researchers

Needs No.	Question	Answer
13	1) Content of training/education	Food traceability
	2) What is behind above need	Support regional project on food traceability
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	3rd
	7) Possible duration and method	3 to 6 months OJT; 2 weeks expert services to assist in workshop
	8) Profession, career, number of possible trainees	3 Researchers

Needs No.	Question	Answer
14	1) Content of training/education	Biochemical pathways in cellular systems using isotopic tracers
	2) What is behind above need	Develop knowledge and skill in biochemical studies in plant and animal syastems
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	4th
	7) Possible duration and method	3 to 6 months OJT; 2 weeks expert services to assist in workshop
	8) Profession, career, number of possible trainees	3 Researchers

Needs No.	Question	Answer
15	1) Content of training/education	Radiation modification of biopolymers
	2) What is behind above need	Enhance current biproduct development programme for healthcare, agriculture and industrial purposes
	3) Field	☐ A. Radioactive Waste Management ☑ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☑ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	5th
	7) Possible duration and method	3 to 6 months OJT; 2 weeks expert services to assist in workshop
	8) Profession, career, number of possible trainees	3 Researchers

Needs No.	Question	Answer
16	1) Content of training/education	Development of bioproducts as radioprotectant agents
	2) What is behind above need	Support current project on radioprotectant
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☑ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	6th
	7) Possible duration and method	3 to 6 months OJT; 2 weeks expert services to assist in workshop
	8) Profession, career, number of possible trainees	2 Researchers

Needs No.	Question	Answer
17	1) Content of training/education	Mutagenesis of crops using neutron sources
	2) What is behind above need	Enhance current mutagenesis programme
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	7th
	7) Possible duration and method	3 to 6 months OJT; 2 weeks expert services to assist in workshop
	8) Profession, career, number of possible trainees	3 Researchers

Needs No.	Question	Answer
18	1) Content of training/education	Soil water management using nuclear techniques
	2) What is behind above need	Enhance current capacity on food security projects
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	8th
	7) Possible duration and method	3 to 6 months OJT; 2 weeks expert services to assist in workshop
	8) Profession, career, number of possible trainees	2 Researchers

Needs No.	Question	Answer
19	1) Content of training/education	Nuclear Public Information
	2) What is behind above need	deliver accurate information and up to date about nuclear technology to the public. KM management of nuclear information in a structured manner for future reference.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☑ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	1st
	7) Possible duration and method	1 week
	8) Profession, career, number of possible trainees	4 research oficer

Needs No.	Question	Answer
20	1) Content of training/education	Technology Foresight
	2) What is behind above need	To acquire basic knowledge and hand-on experience on various aspect of technology foresight in order to facilitate the acquisition and development of appropriate technologies and technical assistance opportunities, (planning phase)towards the peaceful, safe and secure
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☑ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	2nd
	7) Possible duration and method	Lecture, Practice, Technical Visit, etc. Duration : 1-2 weeks
	8) Profession, career, number of possible trainees	3 Research officers, 3 possible trainess

Needs No.	Question	Answer
21	1) Content of training/education	International nuclear affairs
	2) What is behind above need	To acquire basic knowledge and hand-on experience on various aspect of international nuclear affair to engage in appropriate international cooperation and relations o ensure peaceful, safe and secure utilisation of nuclear energy and nuclear technology
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☑ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	3rd
	7) Possible duration and method	Lecture, Practice, Technical Visit, etc. Duration : 1-2 weeks
	8) Profession, career, number of possible trainees	3 Research officers, 3 possible trainess

Needs No.	Question	Answer
22	1) Content of training/education	NKM information
	2) What is behind above need	knowledge management and sharing
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☑ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	4th
	7) Possible duration and method	training, 1 week
	8) Profession, career, number of possible trainees	4 research officer

Needs No.	Question	Answer
23	1) Content of training/education	International system of governance
	2) What is behind above need	To acquire basic knowledge and understanding of international system of governance including legal instruments and non-binding international codes of practice to the adoption and implementation of relevant provisions in appropriate national legislation and regulations.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☑ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	5th
	7) Possible duration and method	Lecture, Practice, Technical Visit, etc. Duration : 1-2 weeks
	8) Profession, career, number of possible trainees	2 Research officers, 2 possible trainess

Needs No.	Question	Answer
24	1) Content of training/education	Risk Management
	2) What is behind above need	To acquire basic knowledge and understanding of risk management system of NPP to disseminate objective and accurate public information on the utilisation of safe nuclear energy and nuclear technology for global peace, security and sustainable development.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☑ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☑ Medium ☑ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	6th
	7) Possible duration and method	Lecture, Practice, Technical Visit, etc. Duration : 1-2 weeks
	8) Profession, career, number of possible trainees	2 Research officers, 2 possible trainess

Needs No.	Question	Answer
25	1) Content of training/education	Probability Safety Assessment (PSA): methodology of level 1 and 2 PSA, full scope (internal and external initiating events) - Introduction to risk concepts on nuclear power plant and/or research reactor: definition of risk, overview of risk analysis - identification and understanding of hazards (to include identifying dominant sequences, important systems and system dependencies, important components and common cause failures, source term analysis) - quantifying failure: Failure Mode and Effect Analysis (FMEA), Event Trees, Fault Trees - comparing risks and setting disparate risks in context - deterministic calculation for PSA success criteria input: thermal hydraulic and neutronic calculation - probability modeling using distribution: using current accident as case study: Fukushima - strategies for managing nuclear risk
	2) What is behind above need	1. A knowledge of systematic methods for identifying hazards 2. An understanding of the basic concepts of risk analysis and the relationship between probability theory and modeling, risk analysis and decision analysis 3. An understanding of the mathematical concept of risk: learn how to use the basic tools or risk analysis (Event Trees, Fault Trees, Simulation Models and Influence Diagrams) 4. An appreciation of the techniques of PSA 5. Familiarity with examples of how such techniques may be used to understand and manage risk so as to satisfy the requirements of a regulator and of the general public
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☑ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☑ Medium ☑ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	1st
	7) Possible duration and method	6 months - 1 year: OJT / Training
	8) Profession, career, number of possible trainees	5 research officer

Needs No.	Question	Answer
26	1) Content of training/education	Nuclear and Radiation Safety Culture (i) Foundation for Operational safety ; (ii) Characteristics of Safety culture; (iii) Intergrates all aspects of managing nuclear installations and activities including the safety, health, environmental, security, quality and economic requirements in a coherent manner; (iv) Promote better understanding of Safety Culture.
	2) What is behind above need	To acquire knowledge to develop and promoting safety culture over competing goals to ensure protection of workers, public and the environment.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☑ E-1. Nuclear Safety ☑ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	2nd
	7) Possible duration and method	(i) Seminar, On Job Training'; (ii) Scientific visit
	8) Profession, career, number of possible trainees	(i) Seminar/On Job Training : 5 (aborad)/ 20 (invite foreign expert); (ii) Scientific Visit: Senior Officer (2)

Needs No.	Question	Answer
27	1) Content of training/education	Emergency Preparedness and Response; (i) Field Monitoring (determining plume boundary; measuring ambient radiation; collecting air samples; collecting other media samples; determining deposition footprint; & transferring samples for analysis); (ii) Simulation of Atmospheric Dispersion of Radionuclide Discharged and Distribution of Dose Rate During Nuclear/Radiological Accident; Countermeasures in Radiological Accidents (Intervention Levels, Action Levels, agricultural countermeasures, countermeasures against ingestion, longer term protective actions) ; (iv)Internal Exposure (Rapid measurement technique – for emergency purpose) Assessment
	2) What is behind above need	To further enhance knowledge and experience on management of radiation emergency @ emergency preparedness and response
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☑ E-1. Nuclear Safety ☑ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	3rd
	7) Possible duration and method	(i) Seminar, On Job Training'; (ii) Scientific visit to established emergency centre (Japan)
	8) Profession, career, number of possible trainees	(i) Seminar/On Job Training : 20 (invite foreign expert); (ii) Scientific Visit: Senior Officer (1)

Needs No.	Question	Answer
28	1) Content of training/education	Thorium Fuel Cycle 1) Investigations of Thorium-232 cross sections 2) Fabrications of Thorium oxide fuel element 3) Physical studies of Thorium oxide 4) Neutronics study of Thorium filled reactor core 5) Radiation dose of Irradiated Thorium 6) Developing LFTR Thorium fuel 7) Studies on the extraction of Thorium 8) Understanding Thorium fuel cycle
	2) What is behind above need	Recently, Thorium potential as a nuclear fuel was identified. Thorium is expected to be abundant in Malaysia and most Thorium resources are still untapped and unexplored. For long term development of nuclear energy in the country, Thorium is needed to achieve self-sufficiency in the national supply of nuclear fuel.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	1st
	7) Possible duration and method	6 months - 1 year: OJT / Training
	8) Profession, career, number of possible trainees	5 research officer

Needs No.	Question	Answer
29	1) Content of training/education	Fuel materials for Nuclear Power
	2) What is behind above need	Understanding on materials selection for fuel in research reactor
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☑ Medium ☑ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	2nd
	7) Possible duration and method	6 months - 1 year: OJT / Training
	8) Profession, career, number of possible trainees	5 research officer

Needs No.	Question	Answer
30	1) Content of training/education	Fuel Engineering and Fabrication for Nuclear Power Plant
	2) What is behind above need	Familiar, develop knowledge, and skills on fuel fabrication technology and engineering for research reactor
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☑ Medium ☑ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	3rd
	7) Possible duration and method	6 months - 1 year: OJT / Training
	8) Profession, career, number of possible trainees	5 research officer

Needs No.	Question	Answer
31	1) Content of training/education	Neutron Scattering Study
	2) What is behind above need	Experimental and instrumentation works on the application of neutron diffraction and scattering principles on materials study. Study on Neutron induced prompt gamma ray techniques for materials characterization and analysis
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	1st
	7) Possible duration and method	Research
	8) Profession, career, number of possible trainees	3 research officer

Needs No.	Question	Answer
32	1) Content of training/education	Development of Radiation Detector and signal processing
	2) What is behind above need	Development of new radiation detectors, behavior and application for radiation detection especially for neutron detection and the connected hardware for signal processing
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	3rd
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	3 research officer

Needs No.	Question	Answer
33	1) Content of training/education	Reactor Maintenances and Services Planning Management
	2) What is behind above need	Operation and maintenance on digital and computerize instrumentation and control system of a research reactor focusing on Condition Based Monitoring (CBM) and ageing management
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	4th
	7) Possible duration and method	Lecture, Practice, Facility Visit, etc.
	8) Profession, career, number of possible trainees	3 research officer

Needs No.	Question	Answer
34	1) Content of training/education	Development of Neutron Detector Material
	2) What is behind above need	Development of material for detecting neutron for neutron instrumentation
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	5th
	7) Possible duration and method	6 months - 1 year: OJT / Training
	8) Profession, career, number of possible trainees	2 Research officers

Needs No.	Question	Answer
35	1) Content of training/education	Nuclear engineering including reactor theory, thermal hydraulic, nuclear power plant design and advancement in nuclear safety, security and safeguards.
	2) What is behind above need	To introduce nuclear engineering program at undergraduate and postgraduate levels at UNITEN
	3) Field	☑ A. Radioactive Waste Management ☑ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☑ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☑ D. Nuclear Power Reactor ☑ E-1. Nuclear Safety ☑ E-2. Radiation Safety ☑ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☐ Go to abroad ☑ Invite foreign expert
	6) Priority	1st.
	7) Possible duration and method	Weekly seminar/training for each module
	8) Profession, career, number of possible trainees	Possibly 10 lecturers who are earmarked to teach nuclear engineering courses at undergraduate and postgraduate levels

Mongolia-Needs

Needs No.	Question	Answer
1	1) Content of training/education	Ensuring safety at disposal and production of radiation isotope in medical and research centers, and legal environment for disposal facilities and radiation safety, security and safeguards
	2) What is behind above need	To ensure safety of radiation isotope, which are at the disposal of production, medical and research centers. To develop structures for training and improvement of professional skills of the national certificated specialists in our country in the field of radioactive minerals, nuclear energy and high technology. To develop and implement legal environment consistent with international standard for disposal facilities and radiation safety, security, safeguards
	3) Field	☑ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☑ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☑ Medium ☑ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	3rd
	7) Possible duration and method	Short-term training courses (1~3 weeks) for staffs Medium-term training courses (1~3 months) for inspectors and officers Long-term training/edication programs (3~12 months) for researcher fellows Possible method will be training, seminar, OJT
	8) Profession, career, number of possible trainees	* Staffs from universities, medical and research centers * Inspectors and officers from governmental authorities and agencies * Researcher fellows from universities and research centers Their background will be nuclear physics, radiobiology, radiochemistry, 5-10 persons

Needs No.	Question	Answer
2	1) Content of training/education	To develop environmental monitoring system and to organize legislative base for nuclear energy and radioactive minerals
	2) What is behind above need	To take measures to develop national infrastructure and monitoring system for nuclear and radiation safety, meeting the demands of international standard, and to prepare of managers who understand the main objectives in field of nuclear energy, radiation application technology and radiation safety and security , To organize legislative base for use nuclear energy and radioactive minerals.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☑ E-1. Nuclear Safety ☑ E-2. Radiation Safety ☑ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☑ Medium ☑ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	1st
	7) Possible duration and method	Short-term training courses (1~3 weeks) for staffs Medium-term training courses (1~3 months) for inspectors and officers Possible method will be training, seminar, OJT
	8) Profession, career, number of possible trainees	* Staffs from universities, medical and research centers * Inspectors and officers from governmental authorities and agencies Their back ground will be nuclear physics, radiobiology, radiochemistry, economic, law, 5-10 persons

Needs No.	Question	Answer
3	1) Content of training/education	Development and implementation of legal environment for radioactive minerals, nuclear energy and radiation application
	2) What is behind above need	To develop and implement legal environment consistent with international Standard for the exploration, exploitation, processing, enriching of radioactive minerals and for the exploitation of nuclear energy, advanced applications of radiation technology in the areas of health care, agriculture, environment and industry. And to adopt IAEA standards for environmental impact assessment for uranium mine, mill and nuclear facilities
	3) Field	☐ A. Radioactive Waste Management ☑ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☑ B-3. Radiation/RI Application for Health Care ☑ B-4. Radiation/RI Application for Neutron Application ☑ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☑ Medium ☑ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	2nd
	7) Possible duration and method	Short-term training courses (1~3 weeks) for workers Medium-term training courses (1~3 months) for inspectors and officers Long-term training courses (3~12 months) for researchers Method will be training, seminar, OJT
	8) Profession, career, number of possible trainees	*Workers from universities, medical and research centers *Inspectors and officers from governmental authority and ageicies *Researchers from universities and research centers Their back ground will be nuclear physics, radiobiology, radiochemistry, engineering, chemistry, nuclear medical phisics, 20 persons

Thailand-Needs

Needs No.	Question	Answer
1	1) Content of training/education	Design and Safety Assessment of Irradiation Facilities
	2) What is behind above need	In order to design new or modified irradiation facilities of the existing research reactor to increase utilization as well as to be able to assess for the potential new research reactor.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☐ Go to abroad ☑ Invite foreign expert
	6) Priority	1st
	7) Possible duration and method	On-the-job training can provide hands-on experience
	8) Profession, career, number of possible trainees	2 - 3 Persons

Needs No.	Question	Answer
2	1) Content of training/education	Planning, Operation, Maintenance and QA Program for High Power Research Reactor
	2) What is behind above need	For the operating staffs to have hands-on experience in management of higher power research reactor in preparation for new research reactor project.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☑ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	5 th
	7) Possible duration and method	Any
	8) Profession, career, number of possible trainees	3 - 4

Needs No.	Question	Answer
3	1) Content of training/education	Radiation processing of polymer by electron beam
	2) What is behind above need	to enhance the level of knowledge and the capacity of the researcher for the application of electron beam to deal with environmental, industrial and agricultural applications.
	3) Field	☐ A. Radioactive Waste Management ☑ B-1. Radiation/RI Application for Industry ☑ B-2. Radiation/RI Application for Environment ☑ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	4th
	7) Possible duration and method	OJT for 3 momths
	8) Profession, career, number of possible trainees	scientist, 1 trainees

Needs No.	Question	Answer
4	1) Content of training/education	Neutron Spectroscopy, Neutron Dosimetry
	2) What is behind above need	Objectives: to gain knowledges about the neutron spectroscopy and the method to accurate the neutron dosimetry calibration. Goal: the specific neutron spectrum data of TRR-1/M1 reactor and the national neutron dosimetry laboratory.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☑ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	2nd
	7) Possible duration and method	Any
	8) Profession, career, number of possible trainees	2 Nuclear Scientists: Ph.D. Nuclear Engineering, Ph.D. Medical Radiation Physics

Needs No.	Question	Answer
5	1) Content of training/education	Neutron radiography
	2) What is behind above need	Objectives: to inspect the cutural heritage samples with the digital neutron imaging system and 3D image reconstrution. Goal: the 3D-neutron imaging system
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☑ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☐ Medium ☑ Basic
	5) Type	☐ Go to abroad ☑ Invite foreign expert
	6) Priority	3rd
	7) Possible duration and method	Any
	8) Profession, career, number of possible trainees	2 Nuclear Scientists: Ph.D. Social science (Archaeology), Ph.D. Nuclear Engineering

Needs No.	Question	Answer
6	1) Content of training/education	Radiation protection program • Work planning in radiation control area • Radiation work permit • Dose mapping • Radiation protection organization Radiation monitoring • Radiation monitoring instrument and management in nuclear power plant • Radiation monitoring instrument and management for personal Action in emergency situation in power plant • Emergency response and preparedness in every level of
	2) What is behind above need	We now in early state of nuclear power plant project. We need to learn about radiation protection program in nuclear power plant so that we can establish our own radiation protection program for upcoming project.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☑ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	8th
	7) Possible duration and method	3- week OJT
	8) Profession, career, number of possible trainees	2 trainees from EGAT

Needs No.	Question	Answer
7	1) Content of training/education	1. Environmental Radiation monitoring: The design and management of environmental radiation monitoring program for NPP (pre-operation, operation, emergency) 2. Dispersion model: to predict radionuclide discharged from NPP to people and environment (Pathways of exposure that should be considered of monitoring in case of normal operation and accident)
	2) What is behind above need	1. To set up environmental radiation monitoring for NPP. 2. To make the operation system of environmental monitoring in the occurrence of abnormal or emergency. 3. To learn how to estimate exposures for general public. 4. To estimate the tendencies of accumulation of radioactive materials in the environment.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☑ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	6th
	7) Possible duration and method	2 -week OJT
	8) Profession, career, number of possible trainees	2 trainees from EGAT

Needs No.	Question	Answer
8	1) Content of training/education	1.Severe Accident Countermeasure requirements 2.Evaluation of the Effectiveness of Countermeasures against Severe Accidents
	2) What is behind above need	To analyze the countermeasures against severe accident of the reactor types that are suitable for Thailand.
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☑ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	7th
	7) Possible duration and method	2 week training
	8) Profession, career, number of possible trainees	1 trainee from EGAT

Vietnam-Needs

Needs No.	Question	Answer
1	1) Content of training/education	Human resource preparation, development and training for NPP
	2) What is behind above need	To learn how and when should we recruit and train people for the NPP project and O&M for the NPP in the future
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☑ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	1st
	7) Possible duration and method	seminar or consulting
	8) Profession, career, number of possible trainees	HR, technical persons

Needs No.	Question	Answer
2	1) Content of training/education	- Project management for the 1st NPP (focus on construction supervision, schedule management and QA/QC)
	2) What is behind above need	NPP project in Vietnam will go to construction phase in the near future and we need to prepare human resource for this phase
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☑ G. Others
	4) Level	☑ Advanced ☐ Medium ☐ Basic
	5) Type	☑ Go to abroad ☐ Invite foreign expert
	6) Priority	2nd
	7) Possible duration and method	OJT
	8) Profession, career, number of possible trainees	Project staff

Needs No.	Question	Answer
3	1) Content of training/education	- Nuclear fuel supply
	2) What is behind above need	To understand the possible supply for the NPP in the future
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☑ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☐ G. Others
	4) Level	☐ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	3rd
	7) Possible duration and method	training or seminar
	8) Profession, career, number of possible trainees	

Needs No.	Question	Answer
4	1) Content of training/education	Material Science
	2) What is behind above need	for the future Nuclear Science and Technology Center of VINATOM
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☑ G. Others
	4) Level	☐ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	2nd
	7) Possible duration and method	Training and OJT
	8) Profession, career, number of possible trainees	Materials Engineer/ Bachelor of Science on Physics & Chemistry / 5 people

Needs No.	Question	Answer
5	1) Content of training/education	Environmental Impact Assessment
	2) What is behind above need	for the future Nuclear Science and Technology Center of VINATOM
	3) Field	☐ A. Radioactive Waste Management ☐ B-1. Radiation/RI Application for Industry ☐ B-2. Radiation/RI Application for Environment ☐ B-3. Radiation/RI Application for Health Care ☐ B-4. Radiation/RI Application for Neutron Application ☐ B-5. Radiation/RI Other than the Above ☐ C. Research Reactor ☐ D. Nuclear Power Reactor ☐ E-1. Nuclear Safety ☐ E-2. Radiation Safety ☐ F. Policy/Planning/Administration ☑ G. Others
	4) Level	☐ Advanced ☑ Medium ☐ Basic
	5) Type	☑ Go to abroad ☑ Invite foreign expert
	6) Priority	1st
	7) Possible duration and method	traning
	8) Profession, career, number of possible trainees	Environmental Management, Bachelor of Science on Physics & Chemistry / 8 people