

# **Fourth Symposium on US-Japan Nuclear Energy Research Cooperation**

**October 22, 2020**

Atomic Energy Division, Research and Development Bureau  
Ministry of Education, Culture, Sports, Science and Technology (MEXT)

# MEXT's Mission to promote R&Ds

MEXT is mainly in charge of R&D and capacity development in every science and technology field, including nuclear energy.



- **R&D on nuclear fuel cycle and high-level radioactive waste disposal**
  - Fast Breeder Reactor cycle technology etc.
- **R&D for decommissioning of Fukushima Daiichi NPS, TEPCO**
  - Promotion of the development of advanced technology for the decommissioning
- **Nuclear safety research**
  - Research for reducing risks associated with nuclear facilities etc.
- **Nuclear science and engineering research**
  - High Temperature Engineering Test Reactor (HTTR) etc.



Joyo and PIE facility



NSRR (Nuclear Safety Research Reactor)



CLADS's Main Building



**MEXT**

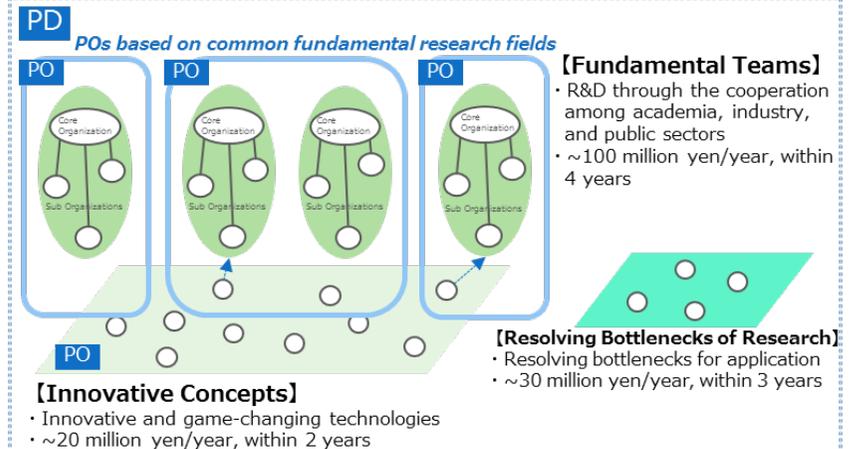
MINISTRY OF EDUCATION,  
CULTURE, SPORTS,  
SCIENCE AND TECHNOLOGY-JAPAN

- **Nuclear policies on science and technology**
  - **Support mainly for academia and public institutions**
    - Strengthening the management of the program
    - Developing new expertise from non-nuclear fields
- etc.

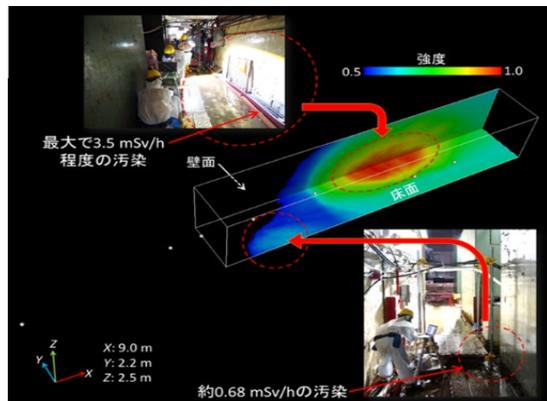
## R&D Program for Nuclear Systems

### Program Committee

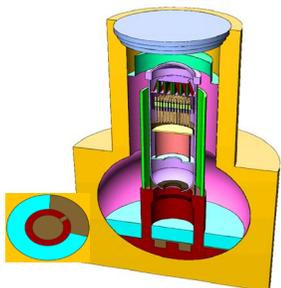
Program Director (PD), Program Officers (PO), MEXT, METI, and external intellectuals



## Recovering from Fukushima Daiichi NPS accident



Development of 3D visualization technology of radioactive substances



Development of evaluation method for dose rate distribution in primary containment vessel of 1F

## SFR (sodium-cooled fast reactor)



**JOYO**



**MONJU**

## HTTR (High Temperature Engineering Test Reactor)



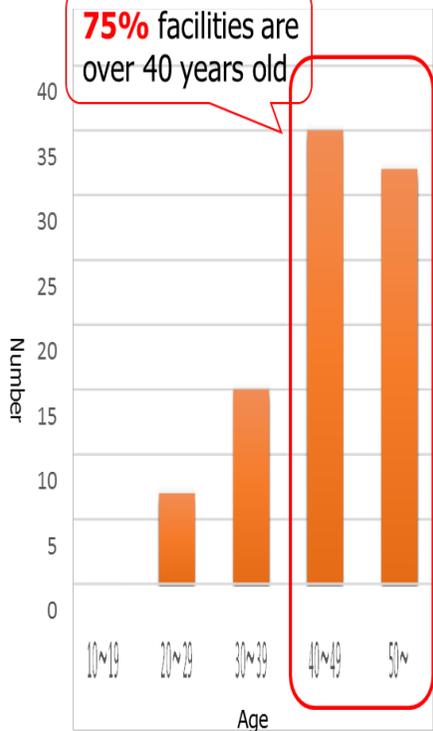
- High inherent safety
- Flexible siting conditions
- Multi-purpose heat applications including hydrogen production
- The power generation and heat utilization efficiencies are higher than those of LWR

# Our Challenge : Decommissioning and R&D for Future

## Decommissioning of Nuclear research Facilities

### Aging

75% facilities are over 40 years old

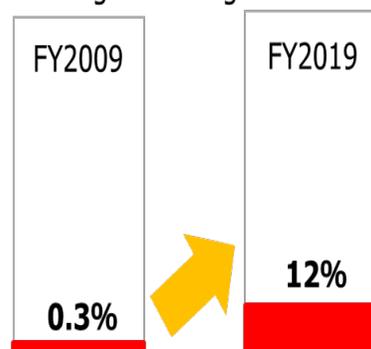


Number of JAEA Facilities by Age

### JAEA Medium/Long-term Plan on Facilities (April 1, 2020)

- **46 facilities will be survived**
- **43 facilities will be decommissioned** (incl.)
  - **MONJU**: the Prototype Fast Breeder Reactor
  - **FUGEN**: the Prototype Advanced Thermal Reactor
  - **TRP**: Tokai Reprocessing Plant

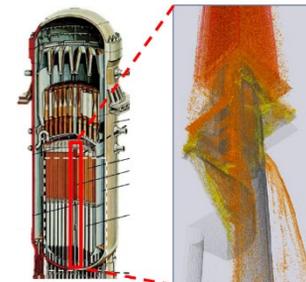
### Portion of Decommissioning Cost among total budget of JAEA



## Promoting R&D for future

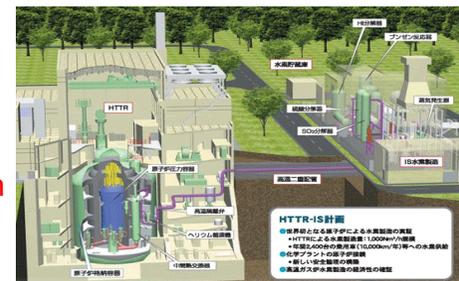


Virtual Reality (VR) System

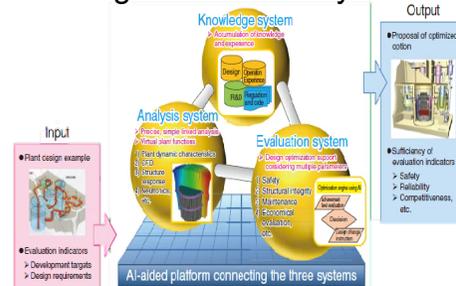


Simulation using Supercomputer

### Hydrogen Production (HTTR)



### Numerical Simulation and Design Estimation System



### Environmental Monitoring (Unmanned airplane)

