Challenge to Debris Removal and Treatment

Remote tech R&D

Enhancement of accessibility

Severe accident assessment by codes

Investigation of inside

Thermodynamic calculation

Sample taking and Analysis

Sim-fuel experiment

Debris: where, what amount, how
Physical and chemical property

Existing Database

Retrieval plan
Retrieval method
Retrieval devise

Treatment
Reprocess?
Conditioning?
Disposal?

Calculation
Basic safety data

Ensuring safety

Safety management
Important aspects for the treatment of debris

Comprehensive and strategic approach is needed covering,

(1) Debris characterization (by experiment? by calculation?)
(2) Access to the debris and sampling (as the first gate)
(3) Technique for retrieval of debris (fundamental tech.)
(4) Treatment of recovered debris (Reprocess? Conditioning?)
(5) Safety during retrieval operation ($k_{\text{eff}}$, $\text{H}_2$, heat, and others)
To enhance viability, time-efficiency, and to avoid delay and unnecessary cost,

(1) Debris characterization
   Along with the JAEA’s fundamental approach, access to world’s database will be the key.

(2) Access to the debris and sampling (as the first gate)
   Inspection to the inside of the vessel to find where, how and how much, and taking samples to know the debris characteristics will be essential. Top priority.
To enhance viability, time-efficiency, and to avoid delay and unnecessary cost,

(3) Technique for retrieval of debris (fundamental tech.)
A sound strategy on the combination of the major remote tool and attachments for specific purpose is necessary.

(4) Treatment of recovered debris
“Beginning with the end” approach is necessary.

(5) Safety during retrieval operation
Re-criticality issue($k_{eff}$), H$_2$ evolution, heat generation, and others aspects should be taken into consideration with the setting of appropriate criteria.