



Efforts for Nuclear Forensics National Capability Buildings in JAEA

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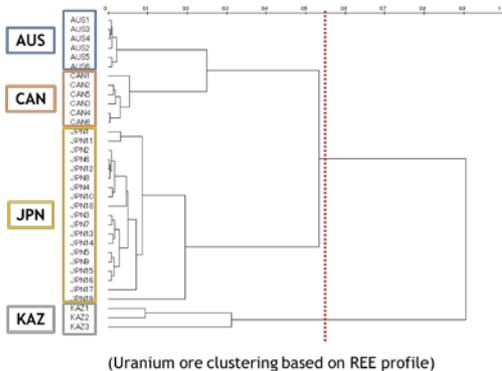
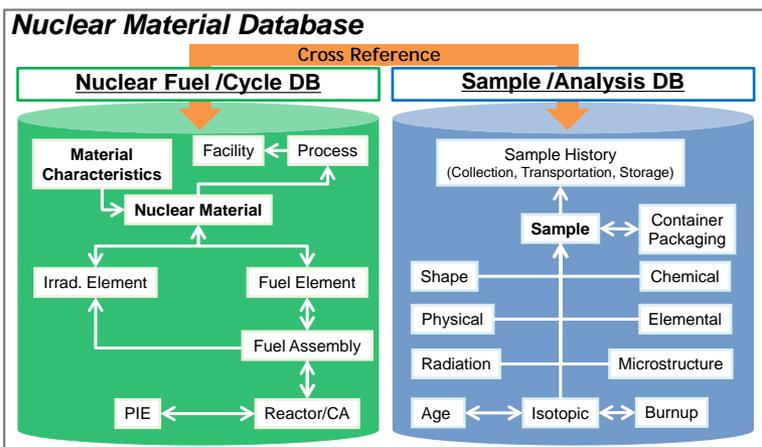
**Integrated Support Center for Nuclear Non-proliferation and
Nuclear Security (ISCN)
Japan Atomic Energy Agency (JAEA)**

JAEA's Efforts for NF National Capability Buildings

- Analysis Technology R&Ds
- Prototype Nuclear Forensics Library
- Overseas Field Survey on National Capability Buildings
- International/Regional Cooperation
 - Research Collaborations
(US-DOE, EC-JRC, Kazakhstan, South Africa)
 - Participation on International/Regional Cooperation Framework Activities
(IAEA, GICNT, ITWG, FNCA)

Prototype NFL Development at JAEA

- NMDB & RIDB based on JAEA Material Data
- Data Collecting for NMs from JAEA Fuel Cycle Facilities (NF Data Analysis R&Ds)
- Multivariate Analysis Tool
- Microscopic Image Analysis Tool
- Data Analysis Strategies for Material Discrimination



Overseas Field Survey on National Capability Buildings

Overseas Field Surveys (2014 & 2015)

- Investigation of NF programs in other countries and international trends: IAEA, USA (LLNL), EU (NFI, ITU)
- Investigation of NF programs and laboratories in other countries: USA (Texas A&M), Canada (CNSC), Australia (ANSTO), Singapore (DSO)

Results:

- National framework and collaboration of related authorities are required to be well defined in National Response Plan for effective nuclear forensics activities and international cooperation.
- No standard or model for nuclear forensics library, and each state has conducted on its national library in line with its nuclear capability.

NF Research Collaborations

US-DOE/JAEA Project Arrangement (PA)

- NSWG Goal2: Nuclear Forensics Research & Development

(Completed)

- Uranium age determination (PAS19)
- Evaluation of fuel attributions (PAS20 and 29)
- NFL development (PAS21)

(in Progress)

- New Uranium age determination technique ($^{231}\text{Pa}/^{235}\text{U}$ method) (PA-7)
- Topological Method for Nuclear Forensics Image Data (PA-8)

EC-JRC/JAEA Action Sheet

- Development of Analytical Technologies (AS-2)
- New Uranium age determination technique (In-situ isotope method) (AS-8)

Others

- Inter-lab. Comparison Test on Uranium Ore Analysis (US/JP/Kazakhstan)
- JAEA/NESCA Joint Research Projects in Nuclear Forensics
(NRF/JSPS Joint Science and Technology Research Collaborations)

Participation on International/Regional Cooperation Framework Activities

IAEA

- International Conference (Nuclear Security/Nuclear Forensics)
- Regional Training Course (2012, 2016)

GICNT

- Plenary and IAG Meeting
- NFWG Expert Meeting, International Conference & Workshop

ITWG

- Annual Meetings
- Collaborative Material Exercise (CMX-4, 5)
- Nuclear Forensics Library Virtual-TTX (*Galaxy Serpent* 1, 2, 3)

FNCA

- Information Sharing among the FNCA Countries on Current NF Status in Each Country
- Awareness Raising, Information Exchange, Training
- Promotion of Multinational or Bilateral Collaboration in the Region