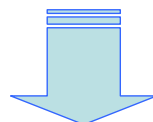# Role of Transparency in Nuclear Nonproliferation

Oarai International Symposium
on Nuclear Nonproliferation
February 7, 2006 JAEA-Oarai

Technical Development and Support Office
Nuclear Nonproliferation Science and Technology Center
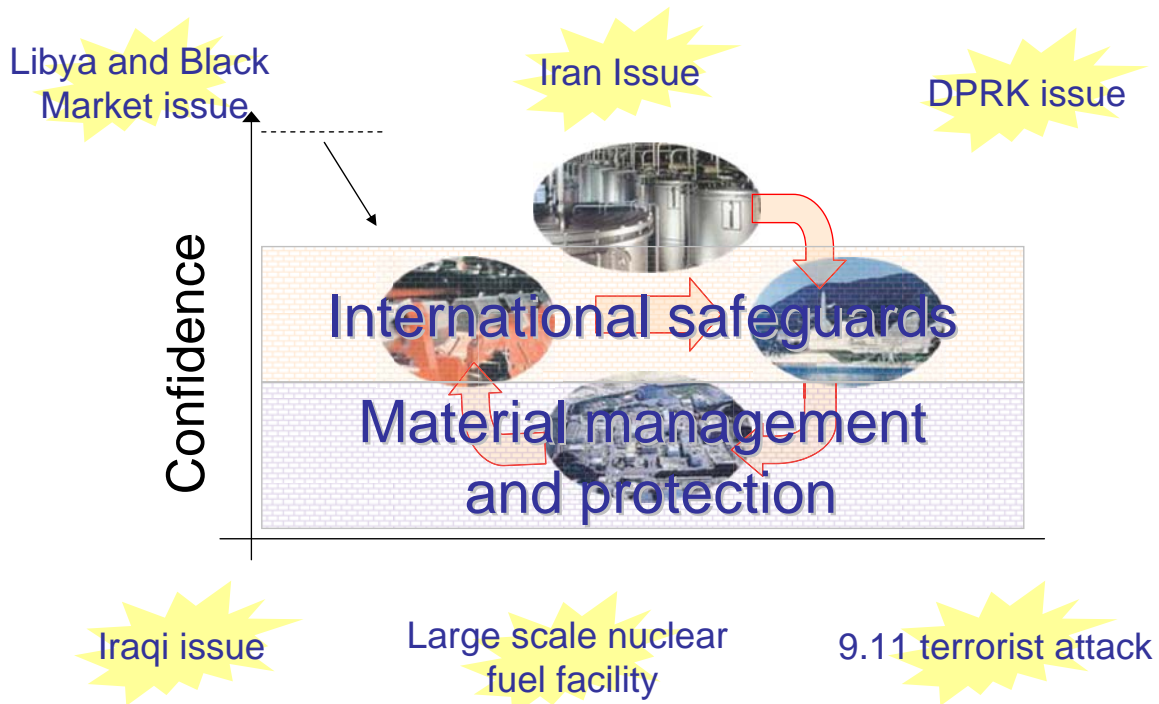Japan Atomic Energy Agency （JAEA)

Masato Hori

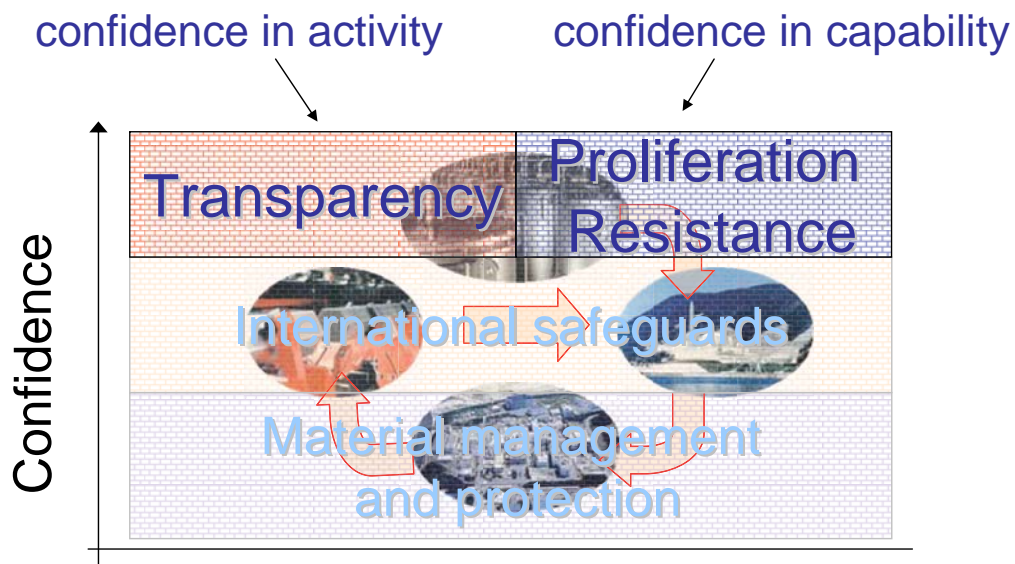# Current Nonproliferation Regime for Peaceful Nuclear Programs

Confidence

International safeguards

Material management and protection

Promotion of peaceful nuclear programs

Issues Related to Confidence of Peaceful Nuclear Program

Libya and Black Market issue

Iran Issue

DPRK issue

Confidence

International safeguards

Material management and protection

Iraqi issue

Large scale nuclear fuel facility

9.11 terrorist attack

Needs of Confidence Building Measures

confidence in activity

confidence in capability

Confidence

Transparency

Proliferation Resistance

International safeguards

Material management and protection

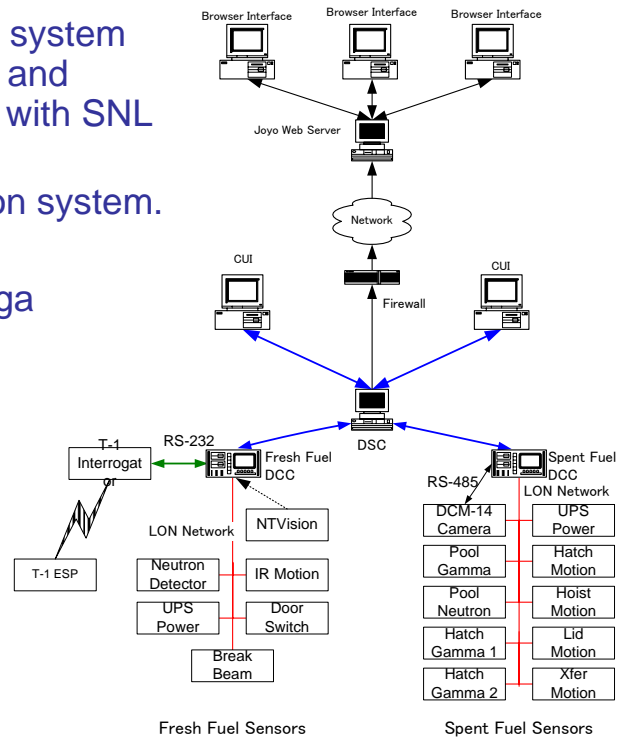# How to Improve the Transparency

- Systematically

  Guidelines for the Management of Plutonium

- Technically

  Using advanced technology to improve transparency

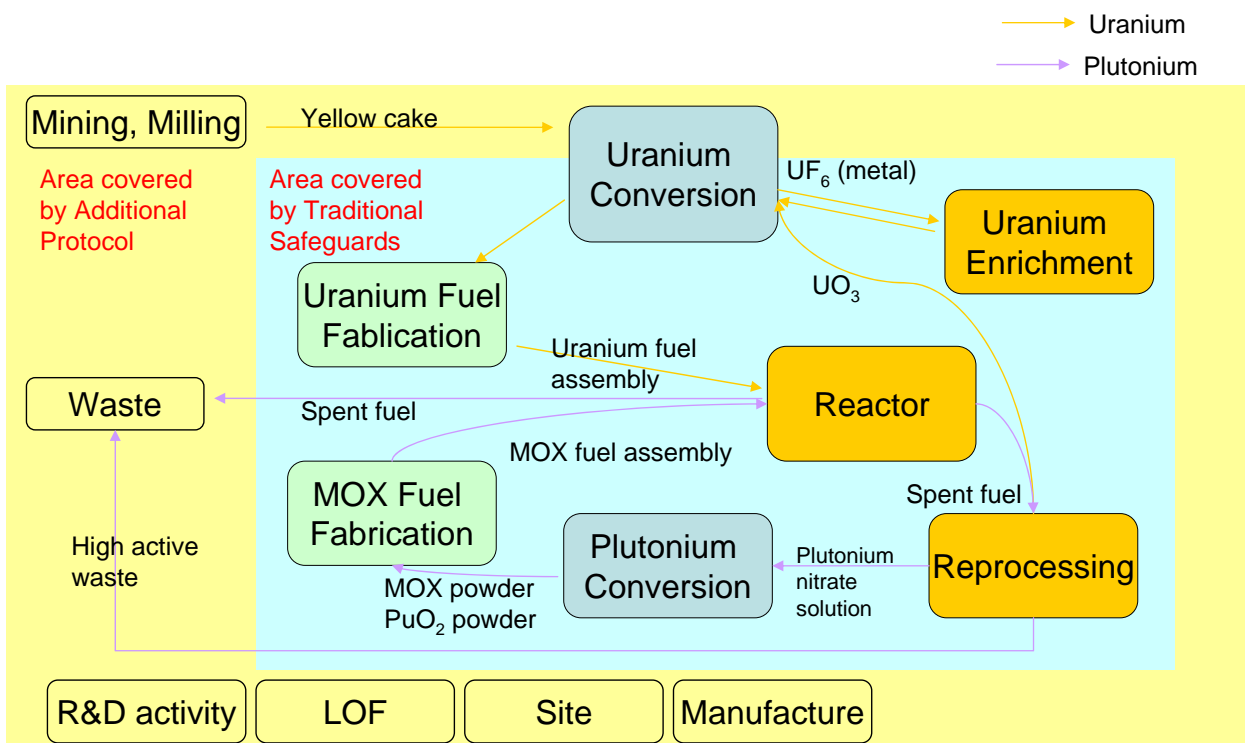- Additional Protocol

Guidelines for the Management of Plutonium

1994 Discussion on framework to improve transparency of plutonium utilization among US, Russia, UK, France, China, Japan, Germany, Belgium, Switzerland started

1997 Basic rule of plutonium utilization and Guideline for the Management of Plutonium was agreed among above 9 countries

1998 IAEA published the Guideline and annual provision of the information from each country to IAEA was started. (www.iaea.org)

Technology to Improve Transparency

- Development of remote monitoring system consist of several types of sensors and detectors at Joyo under joint study with SNL under DOE/JAEA agreement.
- Application of knowledge generation system.
- Transparency Workshop
  2002 Feb. Oarai, 2003 Nov. Tsuruga
  2006 Feb. Oarai

Improvement of Transparency Through Additional Protocol (AP)

AP Transparency Makes International Safeguards More Efficient

Confidence

Transparency

Proliferation Resistance

International safeguards

Material management and protection

- Improvement of transparency increase the confidence and rationalize international safeguards.

Advanced Nuclear Energy System

Generation IV : GenIV
- Sustainability
  - effective use of fuel and
  - minimization of nuclear was
  - proliferation resistance
- Safety and Reliability
- Economy

GENERATION IV nuclear power systems
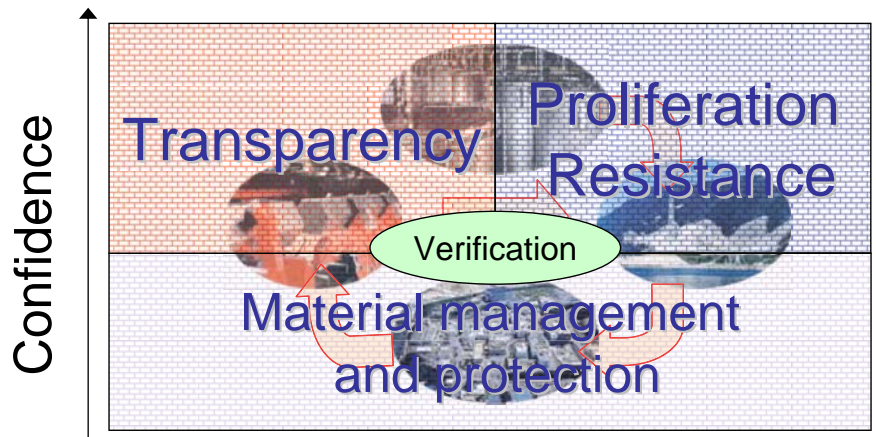
IAEA.org
International Atomic Energy Agency

INPRO
- Economy
- Minimization of environmental impact
- Safety
- Proliferation resistance

Feasibility Study of FBR recycle system
Safety
Economy
Effective use of resources
Reduction of environmental impact
Proliferation resistance

JAEA

Future Option of Nuclear Nonproliferation Regime

- Maintain material management and protection for future nuclear cycle
- Improve proliferation resistance and international authority such as IAEA to certify it
- Maintain compliance with international authority such as IAEA and regional
- Small and more efficient verification activities to confirm above "material management and protection", "proliferation resistance" and "transparency"