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The United States Support Program and IAEA Safeguards

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a passion for discovery

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USSP Contributions to International Safeguards

Attended and Unattended Monitoring Systems



Human Resources – Regular staff, CFEs, JPOs, and Consultants

Training



Concepts and Approaches



Materials Control and Accountability



Information Management

Evolution of Safeguards

- Traditional Safeguards
- Strengthened Safeguards
 - Programme 93+2 measures
- Integrated Safeguards
 - The State Level Approach
- Information Driven Safeguards

The U.S. Support Program

- USSP was created in 1977
- Managed by the International Safeguards Project Office at BNL
- Completed ~1200 tasks
- \$300 million in funding
- Will look at:
 - Equipment
 - Training
 - Human Resources
 - Concepts and Approaches

Traditional Safeguards Equipment – Nondestructive Analysis

HM4



Portable Multi-Channel Analyzer

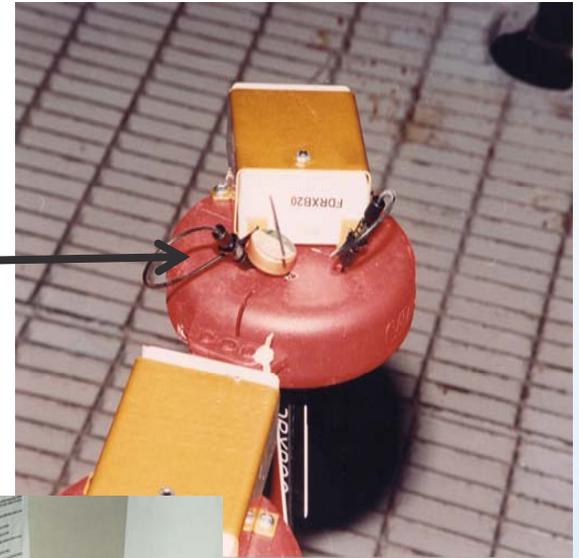


Active Well
Coincidence
Counter



Traditional Safeguards Equipment – Seals

- Paper seal
- Metal seal
- Cobra seal – SNL and Aquila
- VACOSS Seal - Aquila



Traditional Safeguards Equipment – Surveillance

Surveillance Television and
Recording System (1980s)

Modular Integrated Video System
(1990s)



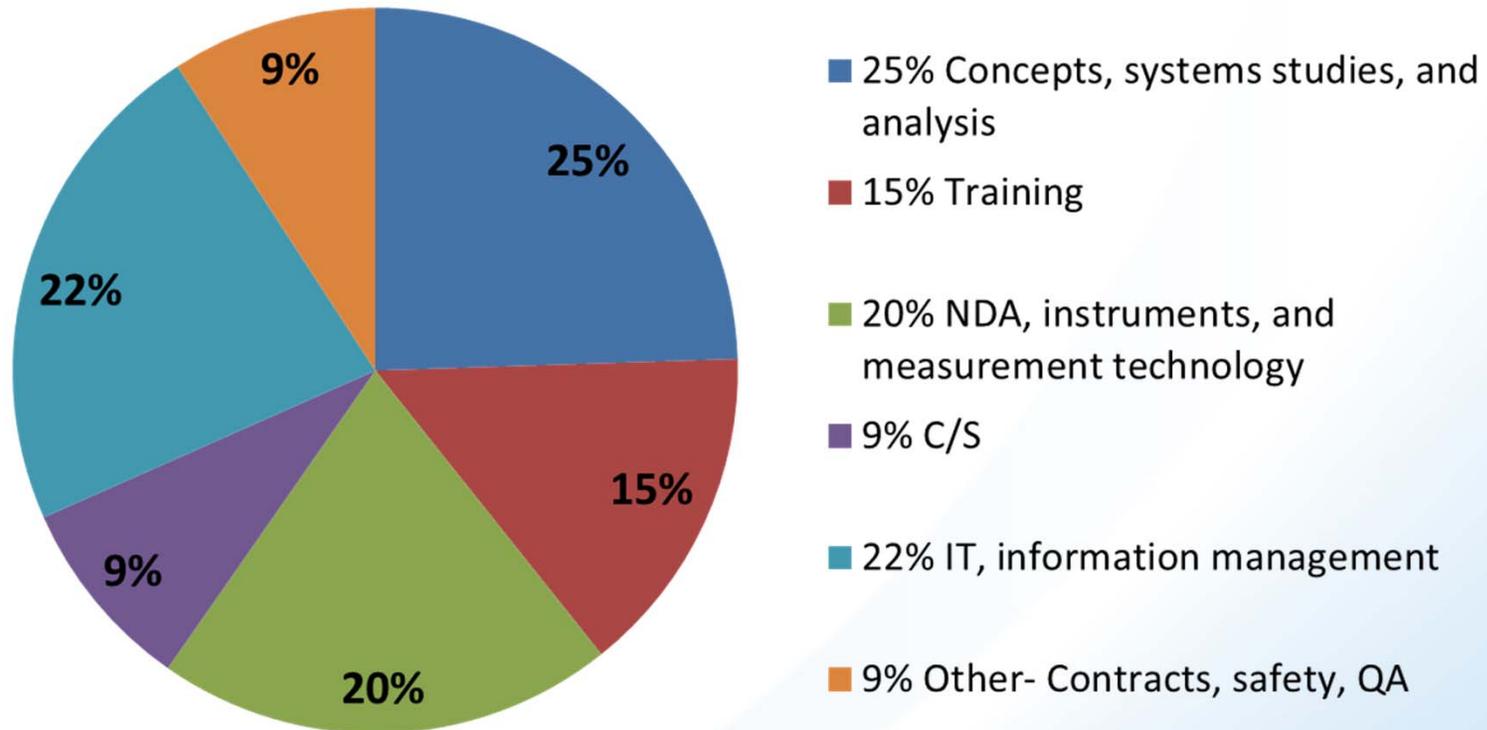
Traditional Safeguards Training –

Nondestructive Analysis for New Inspectors

Enrichment

Human Resources - Cost Free Experts (CFEs)

Fields of CFE Work



Strengthened Safeguards –

Programme 93+2:

- Remote Monitoring
- Environmental Sampling
- Enhanced Training
- Open Source Information Collection and Analysis

Strengthened Safeguards Equipment

NDA

- modified/upgraded for unattended and remote monitoring applications
- New instruments: miniGRAND and AMSR

Seals

- Modified/upgraded for unattended and remote monitoring applications

Surveillance

- move from analog to digital equipment
Gemini and DCM-14 instruments

Strengthened Safeguards Training –

- Environmental Sample Collection
- Communication Skills
- Observational Skills
- Design Information Verification for Research Reactors

Integrated Safeguards Equipment

NDA:

Universal NDA Data Acquisition Platform

Surveillance:

Next Generation Surveillance System

Seals

Comprehensive review of Agency seals followed by program to upgrade existing seals and development new seals



Integrated Safeguards Training –

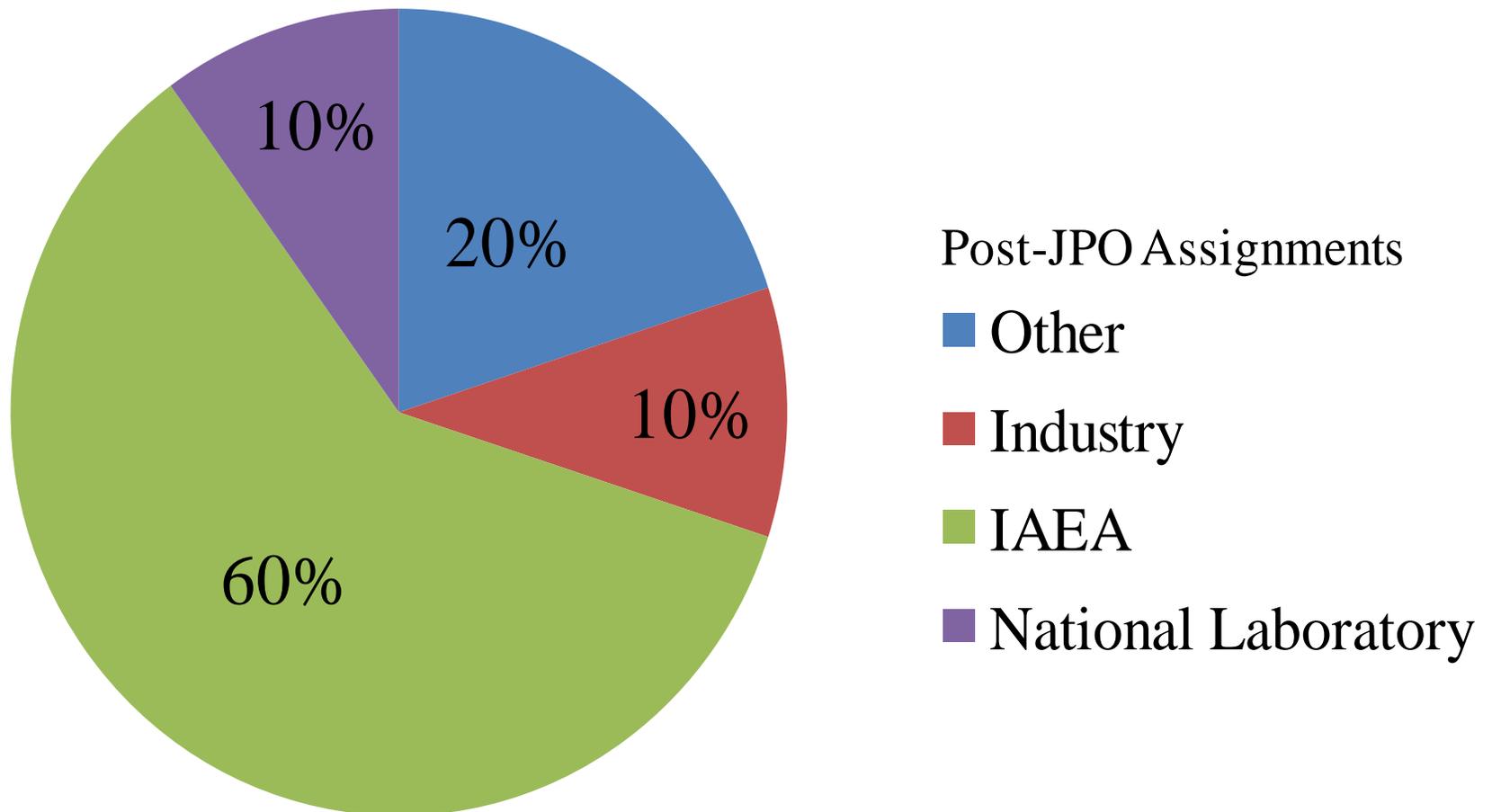
- Additional Protocol/Complementary Access Workshop
- Advanced Plutonium Verification Techniques
- Pyroprocessing

Integrated Safeguards Concepts and Approaches –

- Rokkasho Reprocessing Plant
 - Support to develop unattended monitoring system

- Chernobyl
 - Rail transfer monitoring system
 - Conditioning Plant safeguards system
 - Chernobyl Shelter Access Monitoring system

Human Resources - Junior Profession Officers



Information Driven Safeguards

- The IAEA's needs are not fully known yet
- The USSP has supported two IAEA workshops on IDS
- Significant financial contributions
 - Clean laboratory expansion
 - Nuclear Materials Laboratory upgrade
 - IAEA Safeguards Information System Re-engineering Project
 - nVision
 - Freeze Frame

Conclusions

- The USSP has provided support for the IAEA for the last 35 years.
- USSP evolved with Safeguards to help IAEA manage new challenges
- Over time, the distribution of USSP resources has changed based on IAEA needs
 - Equipment
 - Training
 - Concepts and Approaches
 - Human resources