

A Path Forward



**Experience at International
Atomic Energy Agency
(IAEA), Vienna, Austria**

April 1, 2002 – April 5, 2005

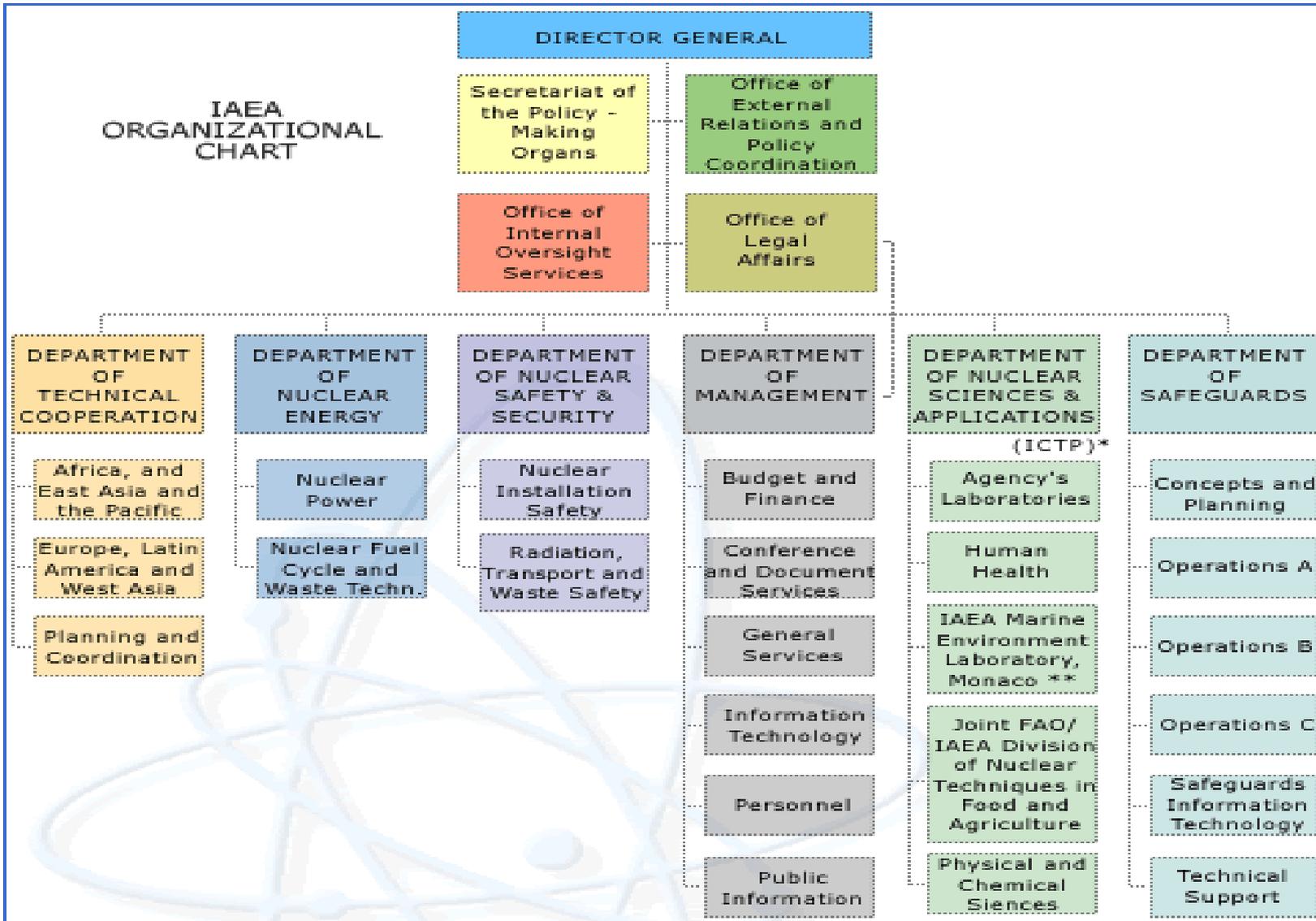
Culture Shock

- **Language**
- **Convenience**
- **Alone**
- **New Country 'x-rays'**
- **Why did I do this?**

IAEA Organizational Environment

- **Multi-Lingual**
 - **Communication**
 - 90% of staff non-native English speaking
- **Multi-Cultural differences**
 - **Decision making**
 - **Solving problems**
 - **Making judgments**
- **Russian, British and Spanish**
 - **Highly political**
 - Not uncommon to play all sides against one another
 - Many hidden agendas

IAEA ORGANIZATIONAL CHART



The Battle field

- **Establishing rapport with new, mid level and Sr. Inspectors to obtain trust and obtain information**
 - Ask questions
 - Listen, and
 - Determine what the inspectors need?

A New Game

- **Additional Protocol INFCIRC 540**
 - **Whole states nuclear program**
 - **Verify that declaration is consistent with all other information**
 - **Draw conclusion that program is accurate and complete**
 - **Ensure absence of undeclared nuclear material**
- **Optimum combination of measure**
 - **Traditional safeguards and strengthened measures of additional protocol to achieve integrated safeguards**

New Rules and Legal Obligations

- **Affects all participating member states**
- **Emphasis on more effective controls of weapons of mass destruction**
 - **Enhanced Physical Security**
 - **Enhanced Material Protection Control and Accounting**
 - **Accelerated security measures for stockpiles**

Today's Situation in 2002-2005

- **Bridge the gap between the old traditional approach to training and the new integrated approach to training**
 - **More information**
 - **More access**
 - **More reporting**

How big is the gap?

- **Old Traditional**

- **Facility focus**
- **Limited access**
- **Narrow focus**
- **Mechanistic**
- **Adversarial environment**

- **New Integrated**

- **The Nuclear Program for the State Focus**
- **Complementary access**
- **Whole process of the Nuclear Fuel Cycle**
- **Qualitative**
- **Cooperative environment**

How big is the gap?

- **Old Traditional**

- **Less information**
- **Limited communication and documentation**
- **Inspector in vacuum**

- **New Integrated**

- **Use of Subject Matter Experts and teams**
- **State Evaluation Report**
- **More inquisitive and open ended questions**

Implications of the Gap

- **Old traditional training approach supports the old training regime**
 - **For example, the State System of Accounting and Control (SSAC)**
 - **Limited classes, instructors, funding, ‘practice’**
 - **No lesson plans**
 - **Material not sequenced, integrated or standardize**
 - **Pieces missing particularly the Additional Protocol**

Implications of the Gap

- **Another good example is the Basic Inspector Training (ICAS)**
 - **Too theoretical**
 - **Limited hands on ‘practice’**
 - **Not standardized**
 - **No lesson plans**
 - **Geographical selection of participants**

Implications of Gap

- **And Two more examples:**
- **United Kingdom ‘Nuclear Fuel Cycle’ Course**
 - Limited classes and funding, ‘practice’
 - Two years after basic inspector training
- **The Enrichment Course**
 - Limited to one course every two years

Opportunities

- **Existing traditional training program often leaves inspectors**
 - **Confused**
 - **Frustrated**
 - **Overwhelmed**
 - **Unsure in the field**
 - **Ineffective in their role**

The present training does not provide an accurate picture of an integrated safeguards system and how it should work



**This is a big RISK
because we don't know
what we don't know**

The need for practical training in an operations environment

- **The training needs must be associated with the integrated approach**
- **This will build the bridge between where we are and where we need to go**
- **The new integrated training approach based on a system methodology will help implement the new safeguards regime more quickly and effectively**

The Systems Approach

- **State Program focus on nuclear fuel cycle composed of interrelated elements**
 - Mining and milling
 - Conversion
 - Enrichment
 - Fuel Fabrication
 - Nuclear Power Plant
 - Storage
 - Reprocessing
 - Disposal
- **Three basic questions can apply to all elements**
 - What equipment or processes are in place?
 - What is missing?
 - What is here that should not be?

Inspectors' Toolkit - WMD

- **Inspectors need the confidence, ability and willingness to:**
 - **Finland Exercise**
 - **Digital Camera**
- **Know the right questions to ask**
- **To listen and clarify in order to understand**
- **Be confident in documenting what they see and hear**

Interpersonal Skills are Critical

- **Training is the mechanism by which the shared safeguards culture and cooperative environments are established**
 - **Technical Understanding (the program)**
 - **Geographic selection**
- **The basic foundation to support the technical understanding**
 - **Observation (detect, question, clarify the deviations)**
 - **Communication Skills (transmit and preserve record of deviations)**
 - **Technical Writing Skills (understand and record correctly the deviations)**
 - **Difficulty on non native English speakers documenting in English**

Window of Opportunity

- **ORNL's GOAL is to:**
 - **Provide an integrated approach to training that equips inspectors and participating members to do a more effective job in a more demanding and complex safeguards environment**

Window of Opportunity

- **ORNL is well positioned to head a multi-lab effort to implement an integrated training regime to support the new requirements**
- **ORNL is the only laboratory in the United States with expertise in the integration of Physical Protection and Material Control and Accounting in an operations environment**
- **ORNL is the home to the High Flux Isotope Reactor (HFIR) and,**
- **The Safeguards Laboratory is the DOE designated National User Facility**

Summary

- **Inspectors are afraid to think, encouraged not to think, afraid to speak out and told what to do and in some cases what not to report**
- **Inspectors need the safe haven where they can practice developing essential skills and be encouraged to think**

























