This paper describes objective technical results and analysis. Any subjective views or opinions that might be expressed in the paper do not necessarily represent the views of the U.S. Department of Energy or the United States Government.

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SUSTAINING A NUCLEAR SECURITY REGIME

A Capacity Building Program

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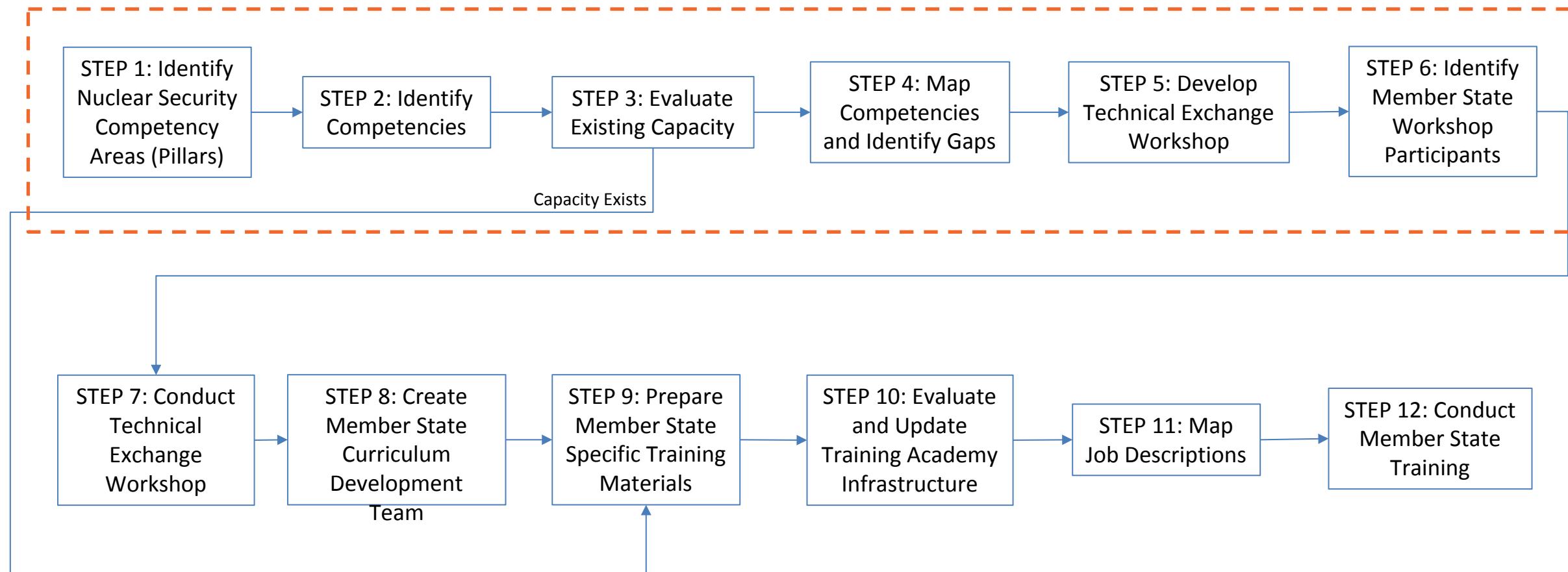Sandia National Laboratories

Office of Radiological Security

- 12 Essential Elements on how to "protect persons, property, society, and the environment from harmful consequences of a nuclear security event."

- Essential Element 12: Sustaining a Nuclear Security Regime
  - One specific objective is for the member state to sustain the nuclear security regime by "Allocating sufficient human, financial and technical resources to carry out the organization's nuclear security responsibilities on a continuing basis using a risk informed approach."

- How to support Essential Element 12?
  - Establish robust Human Resources Development (HRD) capabilities via a capacity building program.

Capacity Building Process

STEP 1: Identify Nuclear Security Competency Areas (Pillars) → STEP 2: Identify Competencies → STEP 3: Evaluate Existing Capacity → STEP 4: Map Competencies and Identify Gaps → STEP 5: Develop Technical Exchange Workshop → STEP 6: Identify Member State Workshop Participants

Capacity Exists

STEP 7: Conduct Technical Exchange Workshop → STEP 8: Create Member State Curriculum Development Team → STEP 9: Prepare Member State Specific Training Materials → STEP 10: Evaluate and Update Training Academy Infrastructure → STEP 11: Map Job Descriptions → STEP 12: Conduct Member State Training

- IAEA Nuclear Security Series No. 12-T, Model Academic Curriculum in Nuclear Security

  – Section 2.8 defining 15 core modules and 17 elective modules representing full scope necessary to sustain a nuclear security regime.

- Review these modules and identify areas applicable to the member state nuclear security regime

  – Areas relevant to nuclear power plants (NPPs) (e.g., Nuclear Material Accountability and Control) may not be applicable if there are no NPPs or plans for them.

- Nuclear Security Competency Areas or Pillars

- Within each pillar identify target supporting competencies
- Example Pillar: Physical Protection System Design, Evaluation, and Performance Testing

  – Example Supporting Competency: Knowledge and skills to identify the threat and associated capabilities as a basis for the design and implementation of physical protection systems and mitigate threats related to material theft or sabotage.

  – Example Supporting Competency: Knowledge and skills to design and implement physical protection systems and measures to protect material against sabotage and theft.

- Determine if capacity exists to support each competency
  - Capacity is knowledge and infrastructure to support the HRD program development
- Exists
  - Skip to Step 9: Prepare Member State Specific Training Materials
- Does Not Exist:
  - Move to Step 4: Map Competencies and Identify Gaps

- Detailed Analysis of Learning Objectives and Materials from Existing Coursework
  - Map each learning objective to the competency it supports
  - Identify gaps in the learning objectives
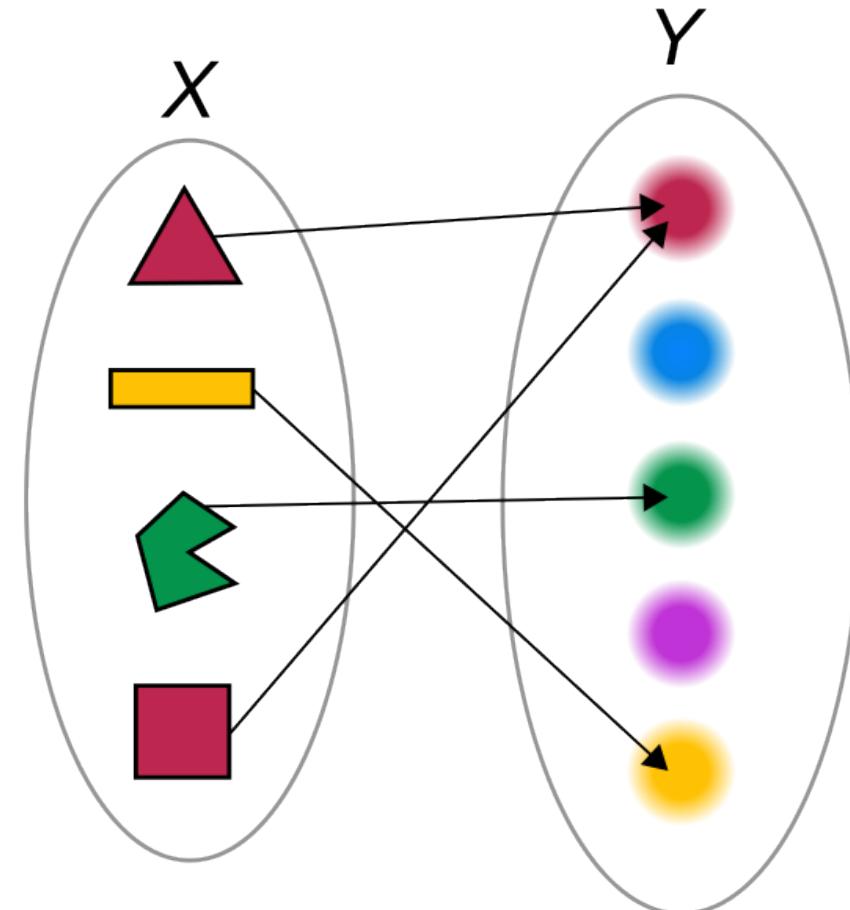
- Prepare Materials for Intensive Technical Exchange Workshop
  - Incorporate existing materials supporting each learning objective into workshop agenda
  - Develop/customize material to address member-state specific competencies and requirements
    - Member state regulations may require additional consideration beyond IAEA guidance
- Technical Exchange Workshop Agenda
  - Virtual modules
  - In-person modules for practical hands on experience

- Technical Exchange Workshop Participants
  - Regulator
  - Operator
  - Nuclear Security Support Center (NSSC)
- Key Points
  - Staff level experts
  - Be prepared to demonstrate knowledge via assessments and meet Member State performance levels
  - Participants should be available to participate as a member of the Curriculum Development Team in Step 8.

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