



International Atomic Energy Agency

Building Newcomer Competence for NPP Safety Assessment through Learning by Doing:

Development of Level 1 Probabilistic Safety Assessment for Research Reactors

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HIGHLIGHTS OF THE PRESENTATION

- **Background**
- **General learning patterns**
- **IAEA project on building competence for nuclear safety assessment – COMPASS-M**
- **Organizational framework**
- **Technical framework**
- **Final remarks**
 - **Outcomes**

BACKGROUND

- The work is being performed under the Extra-Budgetary Project funded by Norway aiming at:
 - *Building competence and capacity for nuclear safety in countries wishing to employ nuclear power option*
- Competence for nuclear safety assessment has to be established in:
 - **Deterministic** area (postulated accident scenarios) - **BASIS**
 - **Probabilistic** area (basically beyond design basis conditions)
- ➔ Applicable to all nuclear installations, incl. NPP & RR
- ➔ **P**SA complementary to **D**SA
 - ✓ *Quantitative risk estimates of undesirable consequences*
(detriment/year): e.g. CDF (Level 1 PSA), LRF (Level 2 PSA)

THE PROJECT TITLE

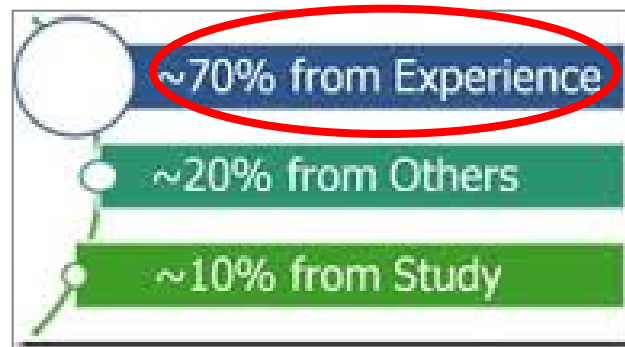
**COMPETENCE FOR PROBABILISTIC
ASSESSMENT OF SAFETY IN MALAYSIA**

COMPASS-M



COMPASS-M: THE OVERALL APPROACH

■ The general learning pattern:



- ✓ PSA technology for nuclear installations
- ✓ By doing a real PSA study for the RR in Malaysia



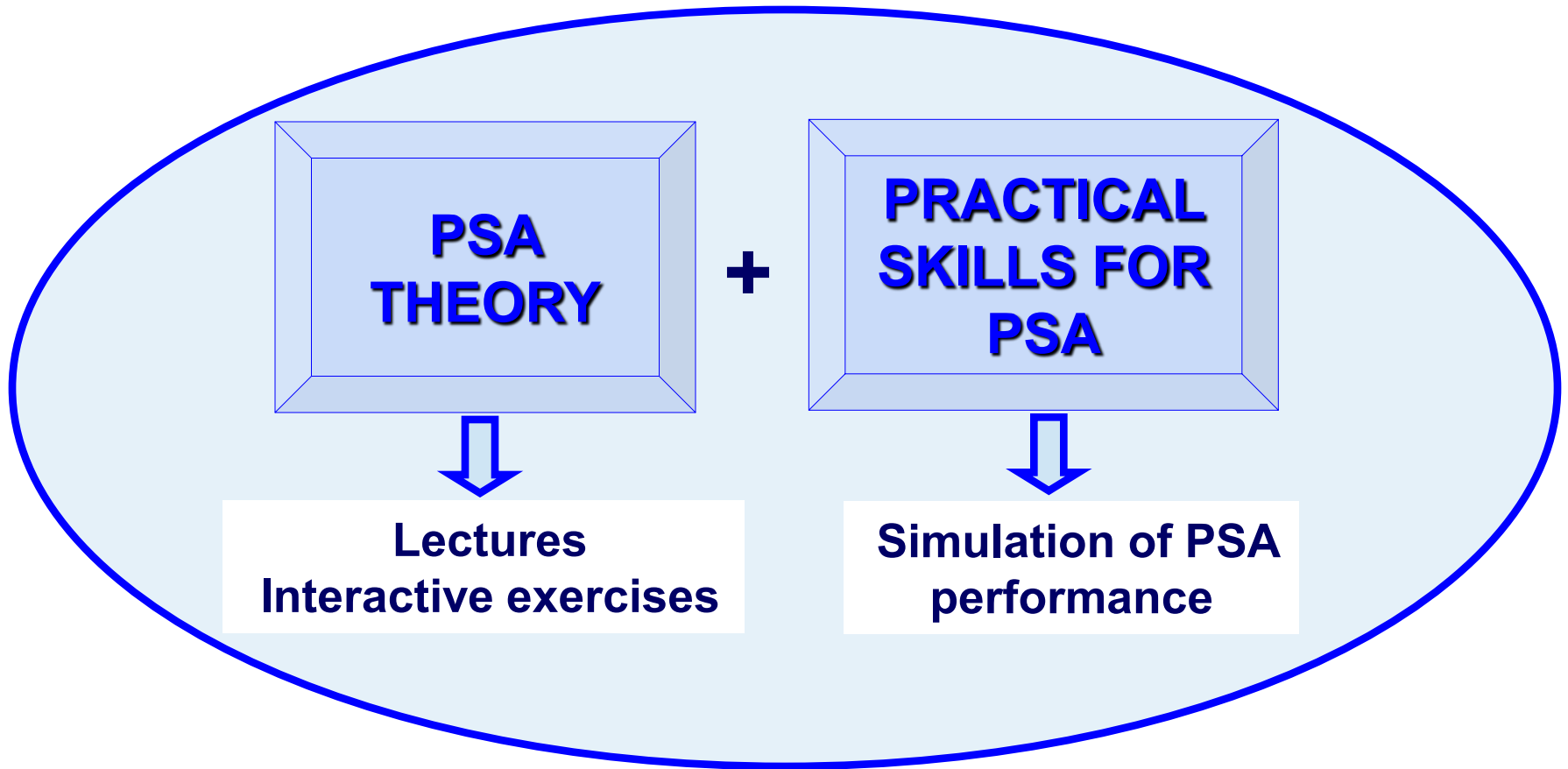
☛ ***Competence for PSA of any nuclear facility including NPPs***

COMPASS-M: GENERAL PROJECT FRAMEWORK

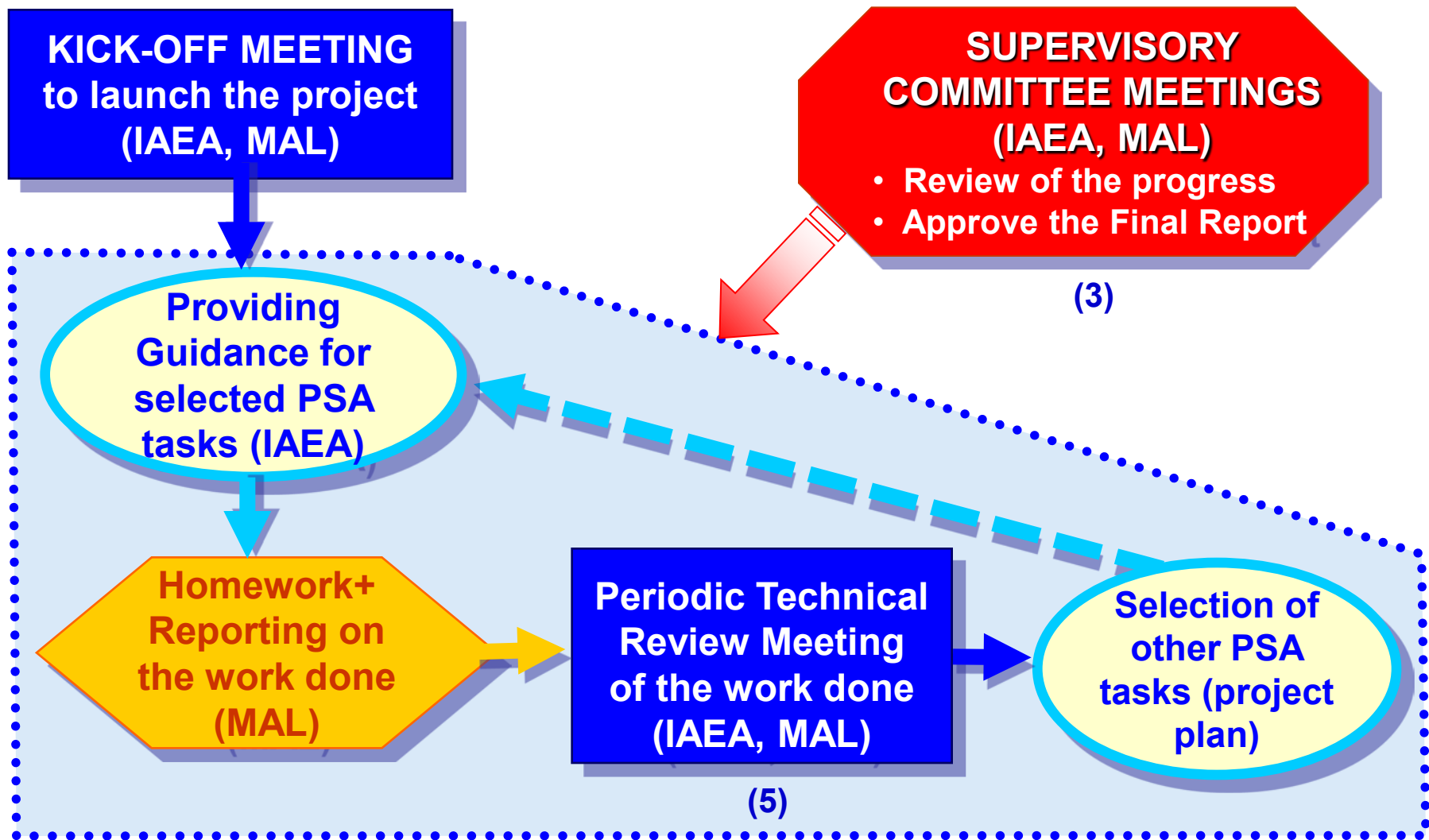
- **PROJECT TITLE:** *Applying PSA to Existing Facilities to Develop Transferable Skills in the Use of PSA to Evaluate NPP Safety*
- **FACILITY:** Research Reactor TRIGA PUSPATY in Malaysia
 - Pilot study
- **GOAL:** To master the PSA technology for safety assessment of NPPs through the practical application of the relevant recent IAEA Safety Standards on PSA to develop a PSA model for the Research Reactor in Malaysia
- **DURATION:** 1,5 - 2 years (depending on the information and resources available)
- **KICK-OFF MEETING:** December 2012

IAEA's PRECEDING TRAINING ON PSA

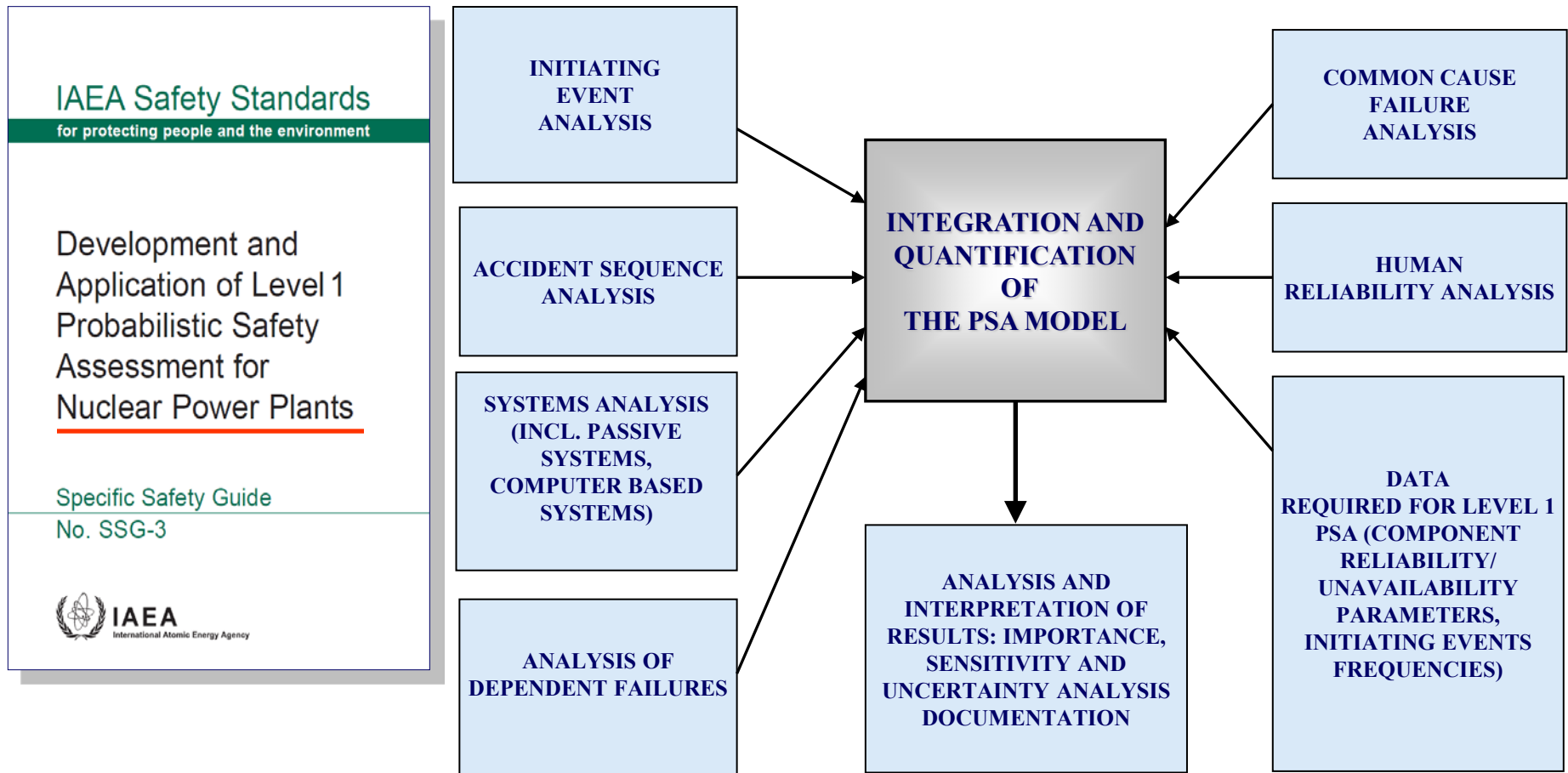
- The IAEA-led training is designed to compensate for the missing opportunities for on-the-job-training on PSA



ORGANIZATIONAL FRAMEWORK



TECHNICAL FRAMEWORK



FINAL REMARKS

- **COMPASS-M project is a very fruitful study**
 1. **State-of-the-art competence for PSA technique in Malaysia (applicable to nuclear installations, incl. RR and NPP)**
 2. **PSA model and report for the operating research reactor in Malaysia**
 - ✓ Risk estimate of core damage and ranking contributors to the risk
 - ✓ Basis for further safety improvement of RR as appropriate
 3. **Input for IAEA's publications on PSA for research reactors**
- **The results will be available to interested Member States (security considerations be addressed)**
 - ✓ Completion in mid-2014, paper to be published in PSAM-12
- ▶ ***Managerial support is instrumental for success of learning-by-doing projects***



Your questions are welcome

