

## Supporting the Development of Technical Reachback for Nuclear Security Detection Architectures

Since 2017, the European Commission's Joint Research Centre hosted two activities under the auspices of the Global Initiative to Combat Nuclear Terrorism (GICNT) that have addressed the topic of building or enhancing reachback support as part of national nuclear security detection architectures (NSDA). These workshops built upon the success of previous GICNT exercises that highlighted that nuclear detection requires a whole-of-government approach that incorporates technical and non-technical detection capabilities, including the integration of law enforcement and technical and scientific communities that support the detection mission. The proposed presentation would highlight the outcomes from the March 2017 "Magic Maggiore" Technical Reachback Workshop and the February 2019 "Cunning Karl" Reachback Support Workshop. Some key elements of the envisioned presentation are included below.

- Summary of key findings from "Magic Maggiore" including common challenges and corresponding best practices
- Summary of key findings from "Cunning Karl" including an agreed upon definition of the term "reachback support" and a core list of capabilities for countries looking to develop reachback support as part of their national NSDA.
- Suggestions for how to utilize the outcomes from both workshops to support IAEA work in related areas.

### "Magic Maggiore"

The "Magic Maggiore" Technical Reachback Workshop brought together a group of 60 technical, scientific, and operational experts to help raise awareness and build commitment towards technical reachback and to share best practices for addressing key challenges.

Outcomes from this event include best practices related to the following areas:

1. The role of technical support to nuclear security detection architectures
2. The role of threat assessments in informing the development of technical reachback
3. The role of information exchange between stakeholders
4. The need for concept of operations (CONOP) and standard operating procedures (SOP) for alarm adjudication
5. The role of technical and scientific experts in identifying equipment and instruments
6. The need for a common lexicon between stakeholders

### "Cunning Karl"

The "Cunning Karl" Nuclear Detection Reachback Support Workshop built on the outcomes of "Magic Maggiore" by exploring strategies for countries looking to integrate reachback capabilities into their national NSDAs. Participants also worked together to define 'reachback support' in order to help build a common understanding and framework for future discussions.

Outcomes from this event include:

- A definition of "reachback" as an offsite entity that provides advisory and coordination support for operational, technical, analytical, and/or scientific matters.
- A list of core capabilities that would be essential for countries establishing or maintaining a national radiological and nuclear reachback support program or network. The list of core capabilities include:
  - o Threat and risk assessment –to inform the level and scale of reachback support required
  - o Legal frameworks –serve as the foundation for a country's national nuclear security detection architecture (NSDA) and national response plan (NRP) and can prescribe the integral reachback support they contain
  - o Standard operating procedures (SOPs) –identify competent national and international authorities and coordination mechanisms between stakeholders, and describe related roles and responsibilities
  - o Communication plans –facilitate implementation of SOPs and should include secure and reliable national communication plans between front line officers (FLOs) and scientific experts and with relevant international stakeholders.
  - o Measurement capability –utilize radiological and nuclear detection equipment to detect the presence of radioactive material. A spectroscopic measurement device should be used during secondary measurements.
  - o Assessment capability –an entity, such as regulatory agency, university, or scientific institute, that has the ability to support detection operations by interpreting the cause of instrument alarms.

- o Coordination role –consistent with SOPs and communication plans, coordinates further scientific support to FLOs, such as deploying technical experts, and provides assistance to decision makers
- o Sustainability measures –training, exercising, and evaluating on a continuous cycle and maintaining resources and personnel to ensure effective use of measurement and assessment capabilities
- o Knowledge management –retaining useful data (e.g. radiation signatures, site configurations, equipment lists) that help detection and reachback experts learn from past experience adjudicating alarms
- Participants also discussed the value of developing a gamma spectra repository or library where experts could securely share spectral and associated metadata. Additional relevant information could be added to the library such as a list of common detection equipment, and gamma analysis software for countries looking to establish their detection and reachback capabilities.

Future proposed work

This envisioned presentation could highlight priorities for future collaborative efforts related to reachback support, including the use of the definition and the core list of capabilities to further promote the development of reachback support in IAEA member states.

## State

Other

## Gender

Male

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