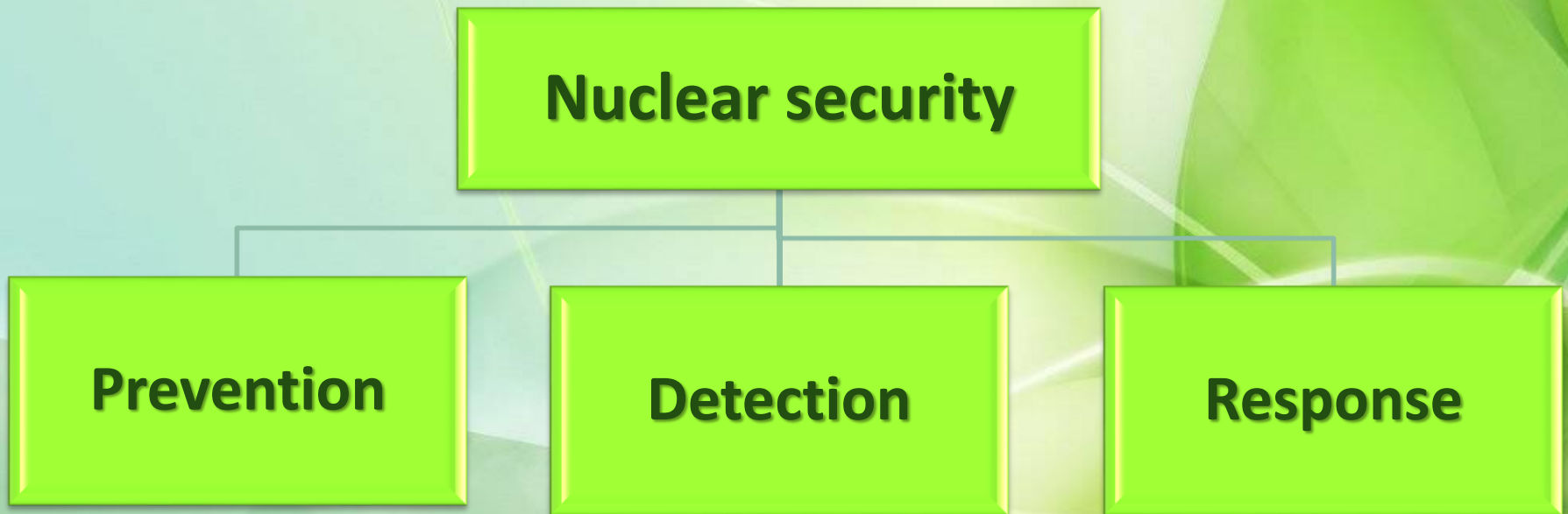



Countering Nuclear Smuggling in Lithuania: Detection

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International Conference on Nuclear Security: Commitments and Actions (CN-244)
Vienna, Austria
5–9 December 2016

Elements of nuclear security system in Lithuania





DETECTION
By Instruments

Governmental Degree on The Rules on Management of Orphan Sources, Nuclear Fuel Cycle Materials, Nuclear and Fissile Materials and Contaminated Objects

Outlines main functions of the national institutions in the event orphan sources, nuclear fuel cycle materials, nuclear and fissile materials or contaminated objects are found



Main Institutions Management of Orphan Sources, Nuclear Fuel Cycle Materials, Nuclear and Fissile Materials and Contaminated Objects



- ✓ State Border Guard Service at the Ministry of the Interior
- ✓ Police Department under the Ministry of the Interior
- ✓ Fire and Rescue Department under the Ministry of the Interior
- ✓ Customs Department
- ✓ Radiation Protection Centre
- ✓ State Nuclear Power Safety Inspectorate
- ✓ State Enterprise Radioactive Waste Management Agency



Detection System Development and International Cooperation

EU, Nordic countries (Sweden, Finland)

- ✓ Equipment for detection – laboratory;
- ✓ Handheld and mobile lab (2005-2009);
- ✓ Methodology



IAEA

- Multiple trainings for:
- ✓ first responders,
 - ✓ staff of national institutions involved in detection,
 - ✓ medical staff



Detection System Development and International Cooperation

United States

Equipment delivery in 2009,
maintenance and repair
in 2015:

- ✓ in situ spectrometer;
- ✓ identiFINDERS® (5 units);
- ✓ Software update;
- ✓ Basic and advance search workshops in 2009, 2013;
- ✓ Training of medical personal in 2014;
- ✓ Training of first responders in 2013-2016;
- ✓ Training of police staff in 2016



RPMs and MDS Installations



- ✓ About 90 RPMs and MDS in total
- ✓ Installation and repair made with the USA and EU financial and technical support



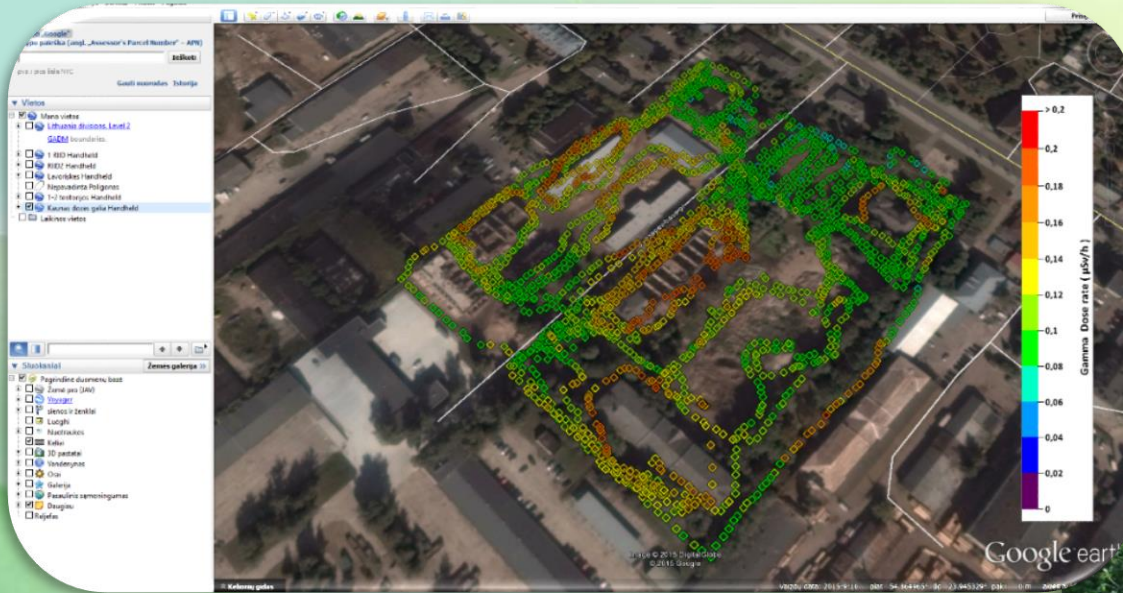
Secondary Detection by Custom Officers and Board Guards

Handheld equipment identiFINDERs[®], radiation pagers



National Orphan Sources Search Campaigns

RPC performs orphan source search programs in former military sites, industrial, medical decommissioned facilities and upon request from local governments



Preparations for Orphan Sources Search

Equipment (delivered in 2009 by DOE) was distributed to the **Radiation Protection Centre** and its regional branches and to the **Radioactive Waste Management Agency (RATA):**

- * InSpector 1000 (2 units)
- * PackEye Backpack (2 units)
- * RadEye PRD ER (5 units)
- * Radiagem 2000 meter (5 units)
- * Mini Smart-ION chambers (4 units)
- * RO20 SIUK ion chambers (5 units)
- * Micro Sievert Meter (2 units)
- * Ludlum Swipe counter (2 units)
- * Ludlum Field scaler (1 unit)

to **Police department, Customs**
and **VIP Security Department:**

- * RadEye PRD ER (35 units)
- * mobil detection systems
- * other detection equipment



Basic and Advance US DoE Trainings – Preparations for Orphan Sources Search DoE, Argonne National Laboratory

Orphan Source Search and Secure Training , October 26-30, 2009
Advanced Search and Secure Operations Workshop , March 4-8, 2013



Radiation Protection Centre

Detection Capabilities of Nuclear and the other Radioactive Material of Unknown Origin

Mobile Laboratory, Handheld Equipment and Team of Experts



Radiation Protection Centre

Detection Capabilities of Nuclear and the other Radioactive Material of Unknown Origin

- ✓ laboratory and in situ HpGe spectrometers;
- ✓ MGA and MGAU codes for determination of uranium fuel enrichment;
- ✓ equipment for radiochemical separation of U, Pu and actinides;
- ✓ alpha spectrometer;
- ✓ liquid scintillation spectrometer;
- ✓ neutron counters;
- ✓ identifiers InSpector 1000, FieldSpec/identiFINDERS[®], RIIDEYE – X handheld spectrometer etc.

For cases involving high activity sealed source the Collaboration Agreement # 31145 was signed with ITU in October 2008

Lithuania Government Investments in Handheld and Mobile Equipment in 2014-2016 (0.5 million Eur)



***Falcon 5000® Portable
HPGe-Based Radionuclide
Identifier***



RIIDEYE – X handheld spectrometer



MONA –mobile spectroscopic radiation detection system

CAUTION



**RADIOACTIVE
MATERIALS**

*Thank You for Your
attention*