

# ESTABLISHING OF NUCLEAR FORENSICS CAPACITY

## IN REPUBLIC OF MOLDOVA



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### Introduction

The Republic of Moldova has no operational power or research reactors and currently has no plans for the construction of a nuclear power plant. But this status may be reviewed at any time, because there is a strong dependence of the country's economy on the import of energetic resources, price of which rises early drastically. In Chisinau – the capital of Republic of Moldova there is a central radioactive waste disposal facility for LLW & HLW. The major users of radioactive sources is the medicine, industry and research area.

### Nuclear security statute

Starting from the axiom that the issue of national security is primarily the task of the State, the National Security Concept was approved in Republic of Moldova, which among the major risks reiterated the separatist regime, international terrorism, consequences derived from human activity, as well as organized crime and corruption. In spite of the nuclear/non-nuclear status no state can be sure that the threats and risks of proliferation will not be applied on its own territory. Unfortunately, the Republic of Moldova is not an exception, as it can be seen through recent events of 2010 and 2011 when the illicit trafficking of nuclear material with depleted uranium and highly enriched uranium, was spread on the front pages of international news.

For prevention, detection and response actions Moldovan authorities have received multilateral assistance from foreign partners as IAEA, EC, Swedish Radiation Safety Authority, US DoE, US NRC. With large external support, we develop and maintain effective measures to account and secure of nuclear and radioactive materials, its use, storage, transportation, effective physical-protection measures and border control, law-enforcement efforts to detect, prevent and combat of illicit trafficking. In connection with the recognition of a growing threat of use of RDD we have undertaken political commitments to accept and applied such international instrument as the CoC, UNSCR 1540 and International Convention for the Suppression of Acts of Nuclear Terrorism, etc. Participation in international non-proliferation mechanisms has given Moldova the opportunity to be recognized as a partner at many international and regional initiatives (PSI, GTRI, GICNT).

Through this conventions and agreements the Republic of Moldova has assumed obligations to provide adequate physical protection of nuclear material that is used for peaceful purposes during its use, storage and international or domestic transportation. The Government has designated the National Agency for regulation of Nuclear and radiological Activities as a national authority, which has the responsibility for state control and supervision of implementation process about physical protection of nuclear materials and to notify the IAEA and its member states in cases when coordination of action regarding the nuclear material is required.

The Law no. 132 concerning safety deployment of nuclear and radiological activities has the following purposes:

- \* prohibit the proliferation of nuclear weapons, materials, and equipment pertinent to the proliferation of nuclear weapons and other explosive devices with radioactive material;
- \* establish mechanisms to ensure the safety and security of nuclear and radiological activities and maintaining them at an appropriate level;
- \* prevent unauthorized carrying out of nuclear and radiological activities;
- \* protect personnel, population, property and the environment against the negative impacts of ionizing radiation;
- \* prevent theft, illicit trafficking of nuclear and radioactive materials and ensuring the physical protection of nuclear and radiological facilities.

### Interdepartmental cooperation

In order to increase the efficiency of cooperation and create the interaction mechanisms to ensure nuclear/radiation safety and security in the country, the National Agency has initiated and signed Memorandums of Cooperation / Understanding with most tangent relevant national institutions: Customs Service, Border Police, Civil Protection and Emergency Situations Service, State Medicine and Pharmacy University, Technical University of Moldova, NGO Technical Support Organization "INOTEH".

### Human resources development

In framework of realization of the INSSP, with support of the United State of America, Swedish Radiation Safety Authority and local stakeholders in second half of 2012 and 2013, three regional and national workshops are organized:

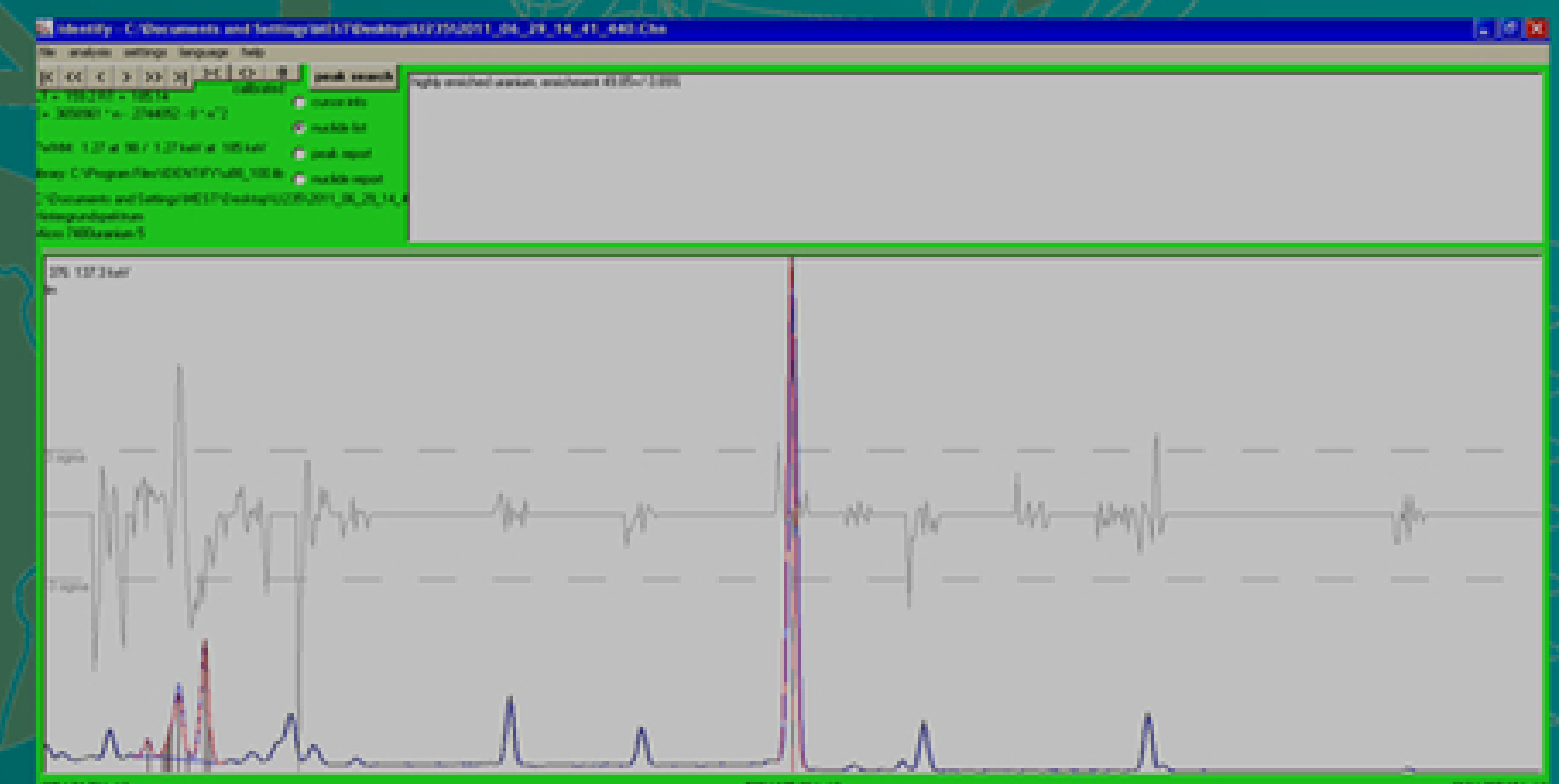
- Regional Workshop on Nuclear Forensics;
- International Workshop on Nuclear Security Issues.
- International Conference in Illicit Trafficking of Nuclear Materials Issues in Black Sea regions.

For prompt response to notifications received from the Customs Service and other authorities, the National Agency has established the Mobile Expert Support Team (MEST), equipped with advanced detection equipment installed on the vehicle, specially designed for such purposes. For more effective feedback the National Agency has received the mobile laboratory for performing measurements under the TACIS program. IAEA and Swedish Radiation Safety Authority supported acquisition of detection equipment to support establishing MEST concept. The equipment includes HPGe gamma-spectrometer, RID, PRDs and MMCA.

### Tentative of illicit traffic of nuclear materials

Among the main results we note the possibility to carry out the primary identification of nuclear materials, captured in actions of combating illicit trafficking in the summers of 2010 and 2011 years

By nondestructive methods - gamma-spectrometry with HPGe detector in a few minutes were established the type and nature and average enrichment of trafficked nuclear material.



Samples of these materials were sent for advanced forensics expertise to Institute of Transuranic Elements of the European Commission from Karlsruhe, Germany and to United States. The results of analysis demonstrated that the sample is uranium oxide with approximately 76 % enrichment.

The National Agency has signed Memorandums of Cooperation with the National Commission for Control of the Nuclear Activities of Romania, Cooperation Agreement between the Swedish Radiation Safety Authority, Memorandum with the Institute for Transuranium Elements of the Joint Research Centre from Karlsruhe, (Germany) for assistance in nuclear or radioactive material forensic analysis.

In context of fortification of national capacity in combating of illicit trafficking of CBRN materials, Moldova is part of Actions Plans launched by Centers of Excellence of European Union, UNICRI and other. In this context carries on large projected of establishment of modern forensic expertise laboratories of CBRN materials which will be recognized by national legal system. Parallel with this activities will start the training of national experts and laboratory personnel in this area.

