NUCLEAR REGULATORY AGENCY

TRANSBOUNDARY MOVEMENT OF RADIOACTIVELY CONTAMINATED SCRAP METAL

Prevention, Detection and Response - Lesson Learned

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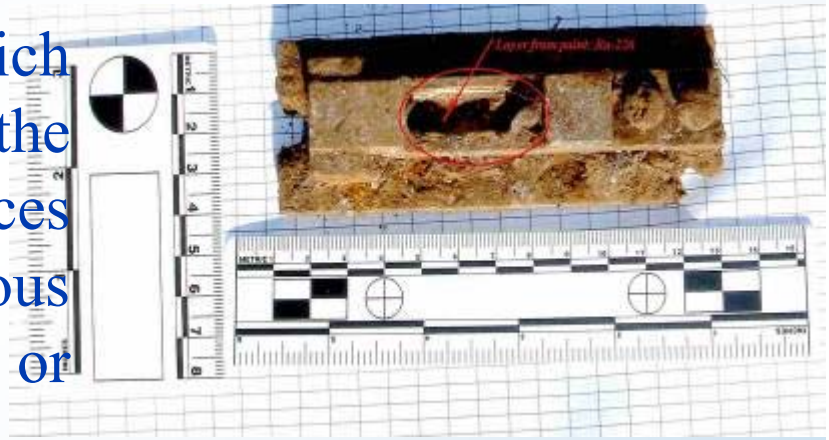
CONTENT OF THE PRESENTATION

- EVENTS WITH RADIOACTIVELY CONTAMINATED SCRAP METAL
- STRUCTURE OF THE METAL RECYCLING SECTOR IN THE REPUBLIC OF BULGARIA
- CHALLENGES FOR THE STATE AND THE BUSINESS (ORGANISATIONAL, OPERATIONAL, FINANCIAL, ETC.)
- PREVENTION, DETECTION AND RESPONSE
  - Regulatory approach
  - Business approach
- LESSON LEARNED
- GOOD PRACTICES

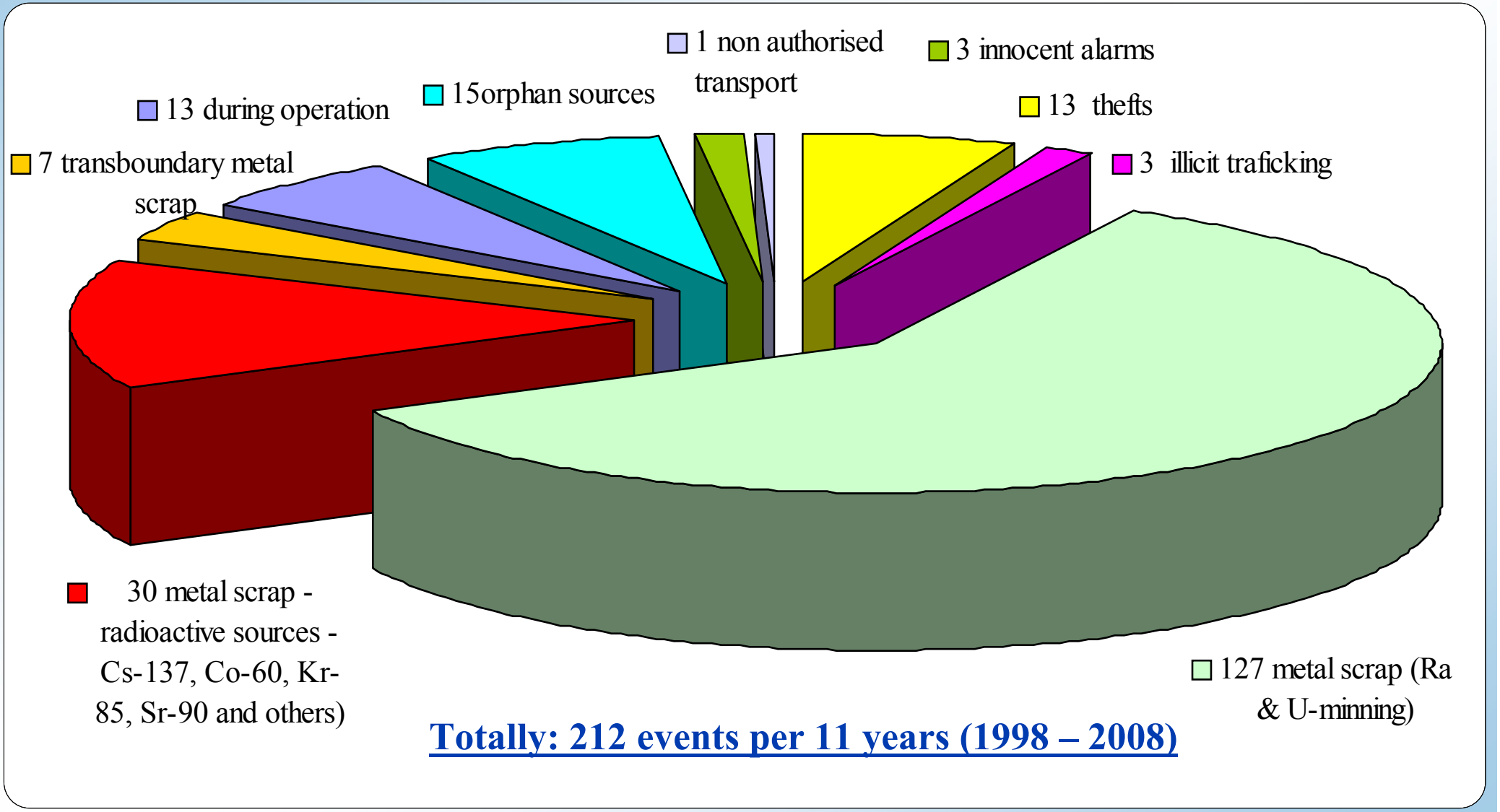
SUMMARY:

- **Over 70 % of the events** are related to the discovery of:
  - Radioactive sources and material, which had been accidentally collected with the scrap metal (these are usually appliances or parts covered with luminous fluorescent paint containing ^{226}Ra or ^{232}Th)
  - Equipment and elements of uranium production or
  - Equipment and elements containing high concentration of naturally occurring radionuclides (not from uranium production)



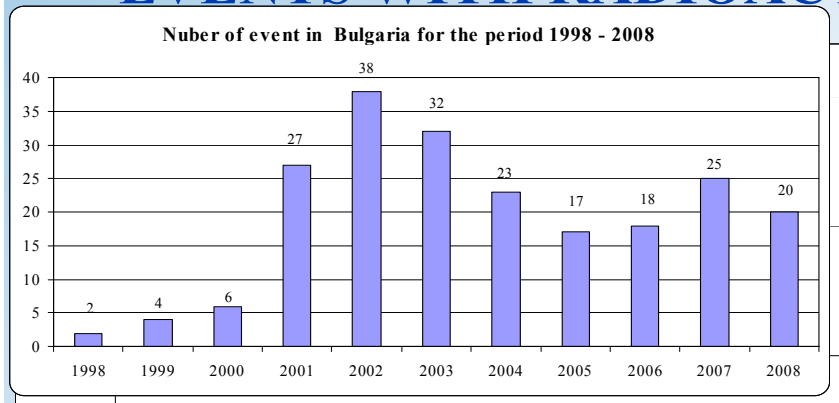
- **Remaining 30 % of the events** are related to detection of radioactive sealed sources, which were lost, found (orphan sources), stolen, illicit trafficking, etc.

EVENTS IN BULGARIA WITH RADIOACTIVE MATERIALS



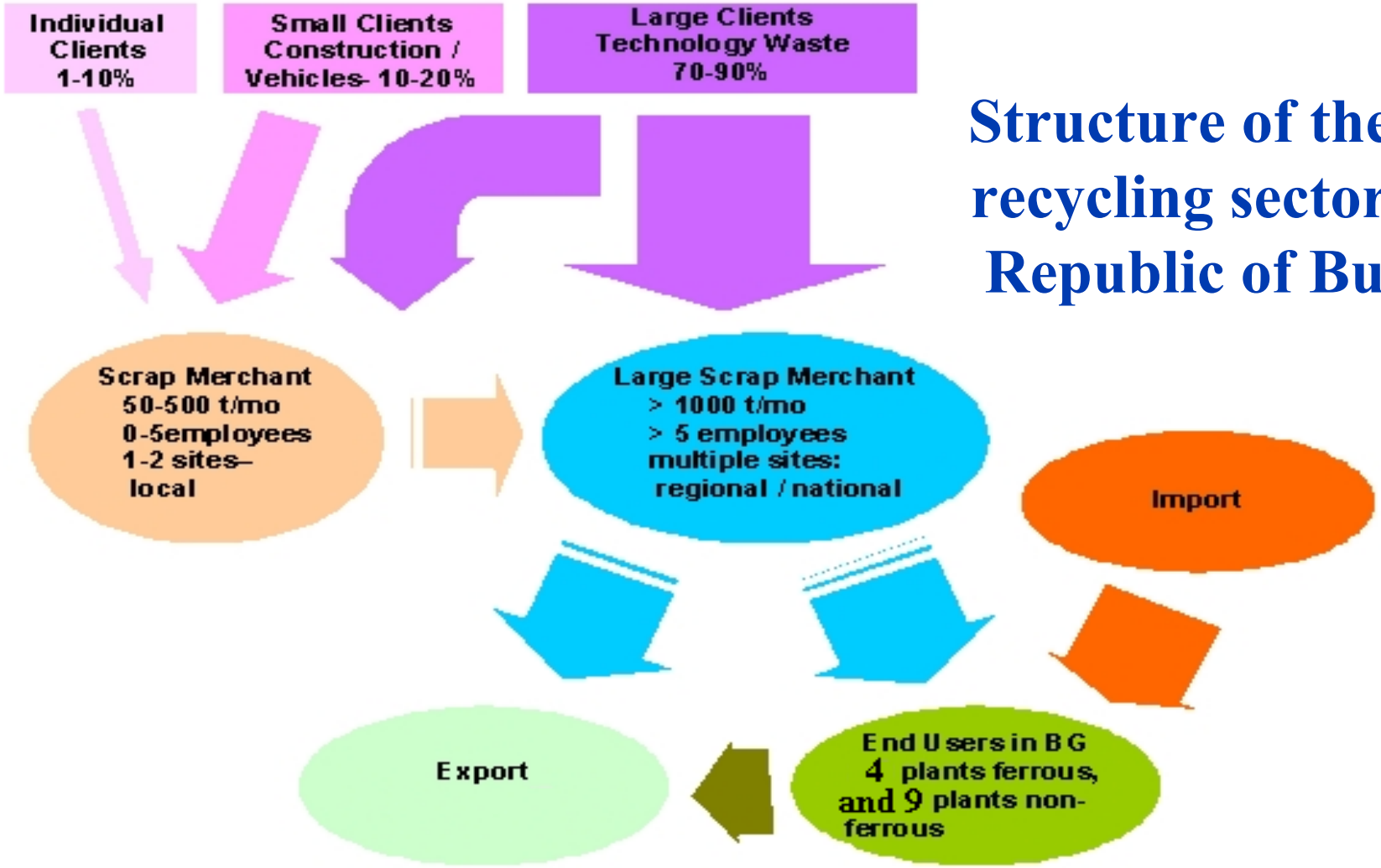
Totally: 212 events per 11 years (1998 – 2008)

EVENTS WITH RADIOACTIVELY CONTAMINATED SCRAP METAL



* The event happened in 1994 and this was the first detected event of transboundary movement

Structure of the metal recycling sector in the Republic of Bulgaria



Import/Export countries: France, Italy, Serbia, Poland, Greece, Albania, Tunisia, Cyprus, Switzerland, Slovenia, Romania, England, Turkey, Macedonia, etc.

Metals plants end users

Ferrous metals plants:	Non-ferrous metals plants:
1. Kremikovtsy, Sofia	5. KCM, Plovdiv
2. Stomana Industry, Pernik	6. Umicore Copper, Pirdop
3. Promet Steel, Burgas	7. OCK, Kardjali
4. Radomir Metals, Radomir	8. Rabar, Asenovgrad
	9. Alucom, Shoumen (Al)
	10. Alcomet, Pleven (Al)
	11. Supersplav, Plovdiv
	12. Sofia Med, Sofia
	13. Kurilo Metal, Novi Iskar

CHALLENGES FOR THE STATE AND THE BUSINESS (ORGANISATIONAL, OPERATIONAL, FINANCIAL, ETC.)

	For the STATE	For the BUSNESS
ORGANISA-TIONAL	- Different state authorities involved with different competences - Cahanges in the legislation – clear definition of field control responsibilities - Development of joint emergency responce procedures - Redefinition of border check-points due to joining EU – replacement of monitoring equipment - Cooperation with other countries	- Significantly fragmented business - Development of emergency procedures - Changes in the contracts
OPERA-TIONAL	- Some staff not concern to the radiation protection and risks - Lack of place at the smaller border check points – limited posibility to mount portal detectors	- Sector not concern to the radiation protection and risks - Small and middle scrap metal yards with manual handling - Radiation monitoring thechnics – the metal act as a radiation shield

CHALLENGES FOR THE STATE AND THE BUSINESS (ORGANISATIONAL, OPERATIONAL, FINANCIAL, ETC.)

	For the STATE	For the BUSNESS
FINANCIAL	- Additional spenditures for: • Training material • Posters, brochurs, etc. • National seminars - Additional financial resources for replacement of monitoring equipment - Investmants in radiation monitoring equipment	- Large number of small scrap metal yards with limited financial resources - Large potential financial losses in case of incident - Investmants in radiation monitoring equipment - Investments in training of the staff

PREVENTION, DETECTION AND RESPONSE

- **Regulatory approach:**
  - at law level (Act on the Safe Use of Nuclear Energy)
  - at secondary legislation level
  - Decision for developed a special guidance directed to the sector
  - licensing the companies performed radiation monitoring of metal scrap
  - Installation of portal monitors at borders
  - Maintaining inter-institutional emergency response team

PREVENTION, DETECTION AND RESPONSE

- **Business approach:**
  - Scrap delivery contract
  - Declaration provided by the suppliers – no radioactive contamination
  - Supplier is considered to be the owner if there is radioactively contaminated scrap
  - Developing Emergency Plan/Procedures
  - Performing radiation monitoring
  - Installation of portal monitors

LESSON LEARNED

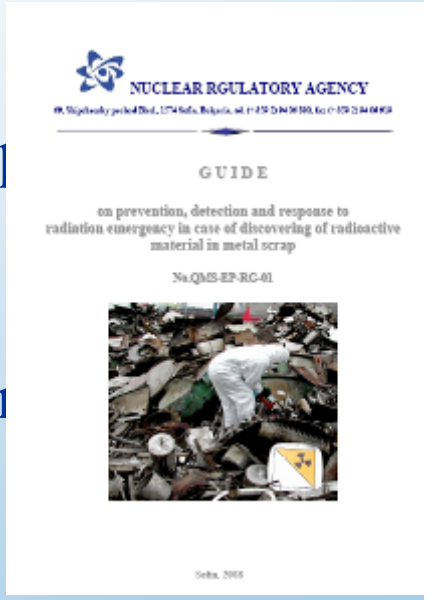
1. Clear allocate the responsibilities of involved organisations

2. Special guidance for prevention, detection and response
   - Training the staff

3. Radiation monitoring equipment and emergency response plans or procedures should be developed
   - Training the staff
   - Drills

Good practices

- The state faced with good understanding and acceptance by the sector of the state policy related to radioactively contaminated scrap
  - detection
  - response
- The state allocated clearly the involved organizations and their responsibilities
- Good co-operation and trustworthy between the state and t
- Cooperation with neighbor countries
- The state developed a guide and distributed it the the secto
- The state (NRA) performed courses


NUCLEAR RGULATORY AGENCY

GUIDE

on prevention, detection and response to radiation emergency in case of discovering of radioactive material in metal scrap

No.QMS-EP-RG-01


Thank you for your attention!
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TZUM