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Nuclear Smuggling and Threats to Lithuanian Security

The article explores threats related to illicit trafficking of radioactive materials and dual-use goods applicable in state level nuclear programs, actualizing the global trends for the Baltic region. The article points to Eastern Europe's changing risk profile in this respect, as increasing penetration of Russian criminal groups inside Ukraine and the destabilized situations in neighboring countries create an environment where the risk of nuclear smuggling is on the rise. Criminal entities can be seen forming new bonds, with trafficking routes intersecting and zones of influence shifting – consequently, an unusual level of criminal involvement in nuclear smuggling is observed, alongside a geographic shift of smuggling patterns. In addition, states seeking materials and technologies for their military programs have taken a notable interest in this region as a way of circumventing international transit regulations. The article looks at the likely implications of these new nuclear smuggling trends for the security of the Baltic states. It suggests that Lithuania may soon be facing a relatively new threat, and one that it is ill-prepared to counter. The article discusses the risk factors and indicators to watch before that risk becomes reality, and offers ways for Lithuania to contribute to addressing these increasingly acute problems on a regional level.

Introduction

The recent years have seen growing Western concern over an increasingly aggressive Russian posture, particularly regarding threats to the Baltic states. Russia has increasingly resorted to using large-scale manoeuvres of military equipment, information warfare, and means of economic sanctions to dial up the pressure. In a broader sense, this has challenged not only the stability of the Baltic region, but also the unity of the NATO alliance. Among the consequences of this multi-pronged hybrid warfare we can count the continuing unrest in Ukraine, as well as the conflicts in Abkhazia, South Ossetia, and Transnistria, which continue to simmer (with regular efforts to stir them up). However, not all forms of aggression or its ensuing consequences are immediately

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obvious. As Lithuania and other Baltic states strengthen their cooperation with NATO partners, and improve their ability to stand up against an armed attack - which might come in the form of air strikes, tank invasion, or “little green men” - it is important to consider the so-called unconventional threats, often treated as less acute for this region, albeit with potential consequences to its security and stability that are just as painful. As Russia’s hybrid warfare is gaining momentum across all fronts, increasing flow of dangerous contraband – with ensuing discrediting of key national structures – could become yet another tool in this fight.

Unconventional threats include terrorism, cyber-attacks, and threats related to chemical, biological, radiological and nuclear (i.e. radioactive) materials. Among these, smuggling of radioactive materials stands out as a threat area where Lithuania should step up its efforts the most. Traces of nuclear smuggling and related activities have regularly surfaced in the country since it regained independence, and for several years now Lithuania has been contributing to the US and EU nonproliferation efforts - yet it still does not view this threat as acute. Illicit transit of dual-use materials (and related financial flows) is a category of nuclear smuggling still lesser known and understood in Lithuania, although other countries actively monitoring such activities report this type of contraband to be much more frequent than transfers of radioactive materials.

The article starts with a brief overview of the nuclear smuggling trends and the relevant scholarly literature. It then discusses the changing trends in nuclear smuggling in Eastern Europe related to the ongoing crisis in Ukraine, instability in its neighboring states, and Russian hybrid warfare efforts. The article points to the historic instances of nuclear trafficking in the Baltic states and Lithuania, comparing their nature and trends to the global patterns and discussing Lithuania’s risk profile in this respect. The article seeks to introduce the reader to the different aspects of nuclear contraband, associated risk factors, and shifting trends in Eastern Europe, actualizing these threats to Lithuania. Monitoring and recognizing related phenomena helps to assess the emerging threats more accurately and to devise more effective preventive measures to ensure long-term security on both national and regional levels.

1. Nuclear Smuggling: Clients, Facilitators, and Trafficking Trends

It is helpful to view the process of nuclear smuggling as elements in a supply chain, the internal dynamic of which tends to change depending on

the circumstance and specific items involved, while the main features remain¹:

- The manufacturer or source of the items in question (may willingly assist the operation, or cooperate unwittingly - unaware of the true nature of transaction);
- Brokers/intermediaries;
- Logistical chain;
- Financial transactions;
- Methods of concealment (for the items in question, their end use, logistical and financial flows, etc.).

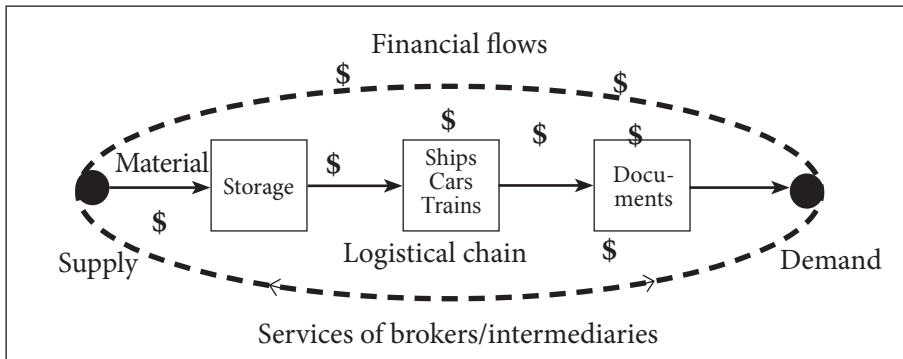


Figure 1. Elements of Nuclear Smuggling

It is also helpful to categorize nuclear smuggling by clientele and materials involved.

Table 1. Types of Nuclear Smuggling

Clients		Materials	
		Dual-use	Radioactive
	States	X	-
	Criminal/Terrorist Groups	-	X

The most common type of nuclear smuggling involves states using intermediaries to illicitly acquire dual-use goods for their nuclear programs. Such materials or technologies (e.g. uranium corrosion resistant paint, marra-

¹ For detailed discussion of the elements of and trends in the smuggling of dual-use goods, as well as measures to counter such activities, see Leonard S. Spector and Egle Murauskaite, “Countering Nuclear Commodity Smuggling: A System of Systems,” CNS Occasional Paper No. 20, March 2014. For conceptualization of radioactive materials’ smuggling as a supply chain, see Lyudmila Zaitseva and Kevin Hand, “Nuclear Smuggling Chains: Suppliers, Intermediaries, and End-Users,” *American Behavioral Scientist* 46 (2003), pp. 822-844.

ging steel, or ball bearings of certain dimensions) are not inherently dangerous and thus they are not sought by criminal or terrorist groups. Procurements of dual-use goods tend to be demand-driven, corresponding with particular needs of unfolding nuclear programs. There are no known instances of states attempting to acquire nuclear materials on the black market. States tend to either internally enrich them to weapons grade or receive them from other states in the form of assistance to a new nuclear energy program.

In contrast, instances of radioactive materials' smuggling are less frequent – most suspects detained with such cargo turn out to be carrying materials of low levels of radioactivity or peddling a hoax. Nevertheless, these types of cases tend to receive more media attention (psychologically, an reported scheme to use a dirty bomb in a densely populated area is more disconcerting with its perceived immediacy, compared to the prospect that a state could use its budding nuclear program as a tool of political pressure five or more years later).

One of the greatest popular concerns is that a terrorist organization could seek to acquire radioactive materials for an attack of massive psychological impact – but no such attempts are known thus far. Based on available research studies on terrorism, it appears that groups whose finance, expertise, and scope of activities could allow for carrying out an attack using radioactive materials, find such attacks unacceptable for ideological reasons and the need to maintain grassroots support over the long term, while groups that have no such inhibitions tend to lack the necessary resources.²

Another common fear is that a criminal group could use radioactive materials for targeted killings. But over the past 20 years this has been a particularly rare phenomenon³. However, there are concerns that professional criminal elements could get involved in related financial and logistical transactions (i.e. not seeking radioactive materials for their own needs but organizing their transit or other elements of the supply chain). Usually organized crime structures deem even this type of involvement too risky,⁴ but in recent years their involvement in nuclear smuggling related activities is on the rise in Eastern Europe.

² See, e.g., Ackerman G. and Tamssett J., (sud.), *Jihadists and Weapons of Mass Destruction* (Boca Raton: CRC Press, 2009); Maj. Kershner, M. R., "Trafficking Nuclear and Radiological Materials and the Risk Analysis of Transnational Criminal Organization Involvement," *US Air Force Center for Unconventional Weapons Studies Future Warfare Series*, No. 57 (May 2014).

³ The poisoning of Aleksander Litvinenko with polonium-210 is the only such confirmed case so far (see, e.g., "Alexander Litvinenko: Profile of murdered Russian spy," CNN, July 26, 2015, <http://www.bbc.com/news/uk-19647226>, 18 11 2015; Rayner G. and Whitehead T., "Alexander Litvinenko 'was poisoned twice with polonium-210' inquiry hears," *Telegraph*, Jan 27, 2015, <http://www.telegraph.co.uk/news/uknews/law-and-order/11371940/Alexander-Litvinenko-was-poisoned-twice-with-polonium-210-inquiry-hears.html> 18 11 2015).

⁴ The reasons behind this are discussed in section 2.

When a cargo of radioactive material is detained, its origin is usually identified, along with the individual or group behind the trafficking operation, but the clients who sought it tend to remain unknown (unless the client is an undercover agent in a sting operation). In terms of intermediaries, brokers, and other participants of the logistical chain, these are usually small groups gathered for this specific task. Participating individuals tend to have prior experience in moving other types of contraband (e.g., cigarettes, luxury items, etc.) and only get involved in a once-off operation, hoping to turn a fast profit.⁵ Unlike dual-use goods' smuggling, this activity is supply-driven: persons with access to radioactive materials attempt to put together schemes for selling them, often involving acquaintances or relatives.

Meanwhile, networks of intermediaries, brokers, or their groups involved in smuggling dual-use materials tend to be more professional and stable. Such activity is often undertaken alongside legitimate businesses (e.g., sales of metals to EU members – as well as to states of restricted access to such goods). Regular flow of goods is ensured using personal connections to bureaucrats in transit states (or resorting to transit document forgery). An important enabling element is concealment of related financial transactions and the goods in transit – usually by routing material and financial transfers through several jurisdictions, masking their true origin and end use(r).

The problem of illicit financial flows is particularly acute for the Baltic states: increasingly frequent attempts by Eastern European (particularly Ukrainian) criminal elements to use the Baltic financial institutions for money laundering have been observed since 2010.⁶ Lately, as large capital flows are exiting not only Ukraine but also Russia, the prospect of illicit transactions related to dangerous contraband or to groups involved in moving it is increasing.

2. Nuclear Smuggling in Unstable Regions

Regions where state functions are weakened by ongoing armed conflict (civil war, separatist movement, or other forms of conflict) create an environment where all types of criminal activity can flourish. For instance, in 1985

⁵ Murauskaite E., "The Trust Paradox in Nuclear Smuggling," *Non-proliferation Review* (forthcoming); Zaitseva L. and Hand K., "Nuclear Smuggling Chains: Suppliers, Intermediaries, and End-Users," *American Behavioral Scientist* Vol. 46, 2003, p. 830-832.

⁶ Belgian Financial Intelligence Processing Unit (CTIF-CFI), "20 Years of Combating Money Laundering and Terrorist Financing," 2013, p. 28, http://www.ctif-cfi.be/website/images/EN/annual_report/20yearsctifcfi.pdf, 19 07 2015.

Charles Tilly described state formation as a fight for the monopoly of violence, comparing the state apparatus to a legitimized criminal structure.⁷ However, even in states with existing governance structure traditions, when the ruling powers lose control of the state apparatus, the country can revert back to the pre-state form of chaos, with new powers vying for the monopoly of violence again. Under these circumstances, border control grows weaker. Along with the whole bureaucratic apparatus, new criminal groups are forming, and territorial control is shifting. Such an environment is particularly accommodating for all types of illicit trade, but the nature of goods changes along with territorial stability. First, once-off dealings can be observed, where demand is met for suddenly scarce items (these goods are mostly legal but difficult to acquire – such as medication or even food). Second, newly available trafficking routes and newly formed connections to bureaucratic or criminal elements eventually allow for larger and riskier trades (e.g., illicit trade in arms and radioactive materials would fall into this category). Third, as such connections stabilize and deepen, and the state remains in turmoil, new networks are formed for handling more regular flows of contraband (e.g., drugs and/or cigarettes; dual-use goods would also fall into this category).

For instance, a restructuring of the Slavic criminal world could be noted already in 2014, along with intensifying flows of various types of contraband in Ukrainian and Crimean ports, and new logistical tendencies. The flow of counterfeit cigarettes via Crimea has turned towards Turkey, the volume of drug trafficking from Latin America (cocaine) and Afghanistan (heroin) has increased, stolen cars from Scandinavia have started to flow via Ukraine, as have arms from European manufacturers.⁸ In addition, a growing presence and vying for influence by Russian criminal groups has been observed in this region: for instance, the Solntsevo gang has reportedly initiated talks with leaders of Crimea's criminal groups even before the 2014 referendum for its territorial status was held, and other groups are also striving to forge new or strengthen existing connections in Ukrainian and Crimean criminal, bureaucratic, and political circles.⁹ Intersection of these various illicit trafficking routes and criminal activities may have future repercussions for the movement

⁷ Tilly Ch., "War Making and State Making as Organized Crime," in Evans P., Rueschemeyer D., and Skocpol T., (eds.), *Bringing the State Back In*, Cambridge: Cambridge University Press, 1985, p. 169-187.

⁸ Galeotti M., "How the Invasion of Ukraine is Shaking up the Global Crime Scene," *Vice News*, November 6, 2014, <http://www.vice.com/read/how-the-invasion-of-ukraine-is-shaking-up-the-global-crime-scene-1106>, 06 07 2015.

⁹ Galeotti M., "Salem' i 'Bashmaki,'" *Radio Svoboda*, October 26, 20014, <http://www.svoboda.org/content/article/26656786.html> 08 07 2015 (in Russian).

of more nefarious goods. Cultivated connections at the border or means of transportation acquired by cigarette or drug smugglers could also be used for moving dual-use and/or radioactive materials.

Regions that contain simmering conflict tend to see a rise in various types of illicit trades, and an increased risk of nuclear smuggling, although the associated risk factors may be noticed only later. In literature analyzing both radioactive and dual-use smuggling, there presently is no consensus as to what pushes persons to get involved in this trade. However, based on multiple interviews with one-time offenders, as well as brokers facilitating such transactions repeatedly, financial motives seem to dominate¹⁰ (although there are a few known cases of persons acting out of ideological reasons¹¹). It is therefore particularly important to monitor the conditions that may allow such activity to unfold.

Over the past decade, studies analyzing illicit trafficking flows in the former Soviet republics as well as Latin America note that organized crime groups tend not to get involved in the trade of radioactive materials.¹² Compared to smuggling cigarettes, drugs, or arms – activities that bring in a regular cash flow – dealings in nuclear contraband are infrequent and carry a high risk. Most criminal gangs thus tend to stay clear of it, unwilling to risk jeopardizing their “regular trades” by attracting the attention of authorities or compromising their bureaucratic ties. Nevertheless, Phil Williams and Paul N. Woessner have analyzed over 700 nuclear smuggling incidents that unfolded in the post-soviet space of 1990s and constituted criminal involvement in one-fifth of the cases. They suggested that the turmoil of this period and newly available market opportunities have reduced the risk of nuclear smuggling to such an extent that it became acceptable to criminal groups (i.e., the inhibiting

¹⁰ Kupatadze A., “Organized Crime and the Trafficking of Radiological Materials: The Case of Georgia,” *Nonproliferation Review* Vol. 17, 2010, p. 219-234; Frontline, “Loose Nukes,” Show #1504, November 19, 1996, Transcript, <http://www.pbs.org/wgbh/pages/frontline/shows/nukes/stuff/script.html> 31 05 2014; Shiffman J., “Shadow War: Hunting Iranian Arms Brokers,” *Philadelphia Inquirer*, September 19, 2010, p. A16.

¹¹ Salisbury D., “Illicit Procurement of German and Indian Valves for Iran’s Arak Heavy Water Reactor,” June 20, 2013, *Project Alpha*, <https://www.acsss.info/proliferation/item/242-mitec-s-procurement-of-valves-for-arak-heavy-water-reactor?tmpl=component&print=1>, 21 03 2015.

¹² Ben Ouagram-Gormley S., “An Unrealized Nexus? WMD-related Trafficking, Terrorism, and Organized Crime in the Former Soviet Union,” *Arms Control Today*, July/August 2007, <http://www.armscontrol.org/print/2448>, 12 06 2014; Galeoti M., “Organized Crime, the Russian Military, and Nuclear Smuggling,” in Shanty F., Paban Mishra P., (eds.), *Organized Crime: From Trafficking to Terrorism, Volume 1*, California: ABC-CLIO, 2007, p. 313-314.

factors discussed above no longer held).¹³ This unusual aspect is noteworthy because, in contrast to global trends, criminal involvement in nuclear smuggling could also be observed in Ukraine in recent years, and local criminal elements have been known to be involved in dual-use goods' smuggling for over two decades. Involvement of Slavic criminal elements in nuclear smuggling is also observable in neighboring Moldova and Georgia.¹⁴ Presently, these countries also have greater capacity for identifying and stopping such contraband, thus suggesting that the situation in Ukraine may be worse than indicated by the data collected and publicized under the local conditions of conflict.

After the fall of the Soviet Union, control of nuclear and radiological materials in the territories of its former republics became a pressing issue: there were fears that impoverished workers with access to such materials would steal them and sell them to criminal or terrorist groups, or that unemployed nuclear scientists will offer their knowledge to states seeking to build nuclear weapons. Active preventive measures were launched in response to these concerns: the Nunn-Lugar initiative started in 1991 has been financing retraining of scientists; elimination of chemical, biological, and nuclear weapons; securing such materials (including safe transport) and improving border security in an effort to prevent their contraband (in 2013 the US allocated 1.65 billion dollars for this program).¹⁵ Despite these efforts, the smuggling of radioactive materials from FSU territories intensified over the 1990s. Over the past ten years materials originating from this region still comprise the majority of the radiological and nuclear contraband (in some cases it is recently diverted materials, but there have also been a number of attempts to sell materials stolen in the 1990s and hidden since then). Back in the 1990s, this dangerous cargo was being moved through the poorly controlled post-soviet space towards Western Europe, including transit through the Baltic states. Over the past decade these transit routes have shifted east, with popular routes stretching across Georgia and Moldova, as well as their separatist territories, and the Crimea region.

¹³ Williams P. and Woessner P. N., "Nuclear Smuggling: Adaptability, Organized Crime and Undercover Operations," in *Measures to Prevent, Intercept and Respond to Illicit Uses of Nuclear Material and Radioactive Sources*, C & S Papers Series 12/P (2001), p. 309-335, http://www-pub.iaea.org/mctcd/publications/pdf/csp-12-p_web.pdf 23 10 2015.

¹⁴ "Moldova Arrests Seven Suspected Of Smuggling Radioactive Material," *Radio Free Europe*, December 9, 2014, <http://www.rferl.org/content/moldova-russia-dirty-bomb-radioactive-materials-arrests/26733786.html>, 03 07 2015; Butler D. and Ghirda V., "Nuclear Smugglers Sought Extremist Buyers," *Associated Press*, October 7, 2015, <http://bigstory.ap.org/article/6fd1d202f40c4bb4939bd99c3f80ac2b/ap-investigation-nuclear-smugglers-sought-terrorist-buyers>, 07 10 2015.

¹⁵ Nikitin M. B. and Wolf A. F., "The Evolution of Cooperative Threat Reduction: Issues for Congress," June 13, 2014, Congressional Research Service, <http://www.fas.org/sgp/crs/nuke/R43143.pdf>, 10 08 2015.

However, with continuing unrest in the Ukrainian neighborhood, there is a growing risk that these threats could touch the Baltic states more acutely again.¹⁶

3. Incidents in Lithuania and Other Baltic States

Today, Lithuania is among the US Eastern European partners actively advancing nonproliferation efforts. At the Nuclear Security Center of Excellence established under the Medininkai border security school, international experts regularly share their best practices in this field.¹⁷ Still, it should be remembered that in the early years of Lithuanian independence radioactive materials' smuggling routes, stretching across Eastern Europe towards the West, also included this country.

The 1992 incident when a nuclear fuel rod weighing around 270 kg (2% enriched uranium u-235) was stolen from Ignalina's Nuclear Power plant (INP) is by far the best known, though certainly not the only such case in Lithuania.¹⁸ For instance, in May 1996, six businessmen from Klaipeda were detained after attempting to sell 13 kg of uranium-238, which they were suspected of stealing from a military base in Ukraine.¹⁹ Earlier that same year, FBI officers seized a large contraband of cesium-137 in Lithuania,²⁰ and local officials had stopped six Lithuanians and two Georgians attempting to sell 100 kg of uranium-238 stolen from a company responsible for nuclear waste management at INP.²¹ Furthermore, smuggling of radioactive materials was not a phenomenon associated exclusively with the early years of independence: in 2002, six Lithu-

¹⁶ For a more detailed discussion the criminal restructuring in Ukraine, the consequences of this process for the region, and implications for nuclear smuggling risks, see Murauskaitė, E. "Dėl pokyčių Ukrainoje - branduolinės kontrabandos rizika Lietuvai" ["Changes in Ukraine and the Risk of Nuclear Smuggling in Lithuania"], Delfi.lt, Liepos 29, 2015, <http://www.delfi.lt/news/ringas/abroad/e-murauskaite-del-pokyciu-ukrainoje-branduolines-kontrabandos-rizikalietuvai.d?id=68560360>, 29 07 2015 (in Lithuanian).

¹⁷ Nuclear Security Center of Excellence, news: <http://www.nscoc.lt/?lng=en>, 10 09 2015.

¹⁸ Over the 10 years following this theft more than 80 kg of the stolen uranium fuel pellets have been recovered (see: "Rasta pries 11 metų pavogta kuro kasetė" ["Fuel Rod Stolen 11 Years Ago has been Recovered"], BNS, Kovo 21, 2003, <http://www.delfi.lt/news/daily/crime/rasta-pries-11-metu-pavogta-branduolinio-kuro-kasete.d?id=2078037>, 26 09 2015 (in Lithuanian)).

¹⁹ Reuters News, "Lithuanian Police Seize Uranium Haul," May 20, 1996; Reuters News Press Digest, May 21, 1996.

²⁰ Freeh L. J., Director of the Federal Bureau of Investigation, Statement Before the Senate Appropriations Committee Subcommittee on Foreign Operations, Hearing on International Crime, March 12, 1996.

²¹ "Chronology of Nuclear Smuggling Incidents," Appendix to Deutch J., Director of Central Intelligence Agency, Testimony before the Senate Permanent Investigations Subcommittee on global proliferation of weapons of mass destruction and illicit trafficking of nuclear materials, March 20, 1996.

anians were detained in Vilnius with a large contraband of cesium-137, which they had brought in from an unnamed FSU republic.²² It is also worth noting that the 1992 theft of the INP fuel rod was an inside job, and even after introducing stricter controls at this strategic object, the insider threats seem to remain (although their nature has changed): in 2007, several INP employees and collaborating border guards were detained for stealing over 40,000 euros worth of supplies from the power plant territory.²³

Over the period of 1992-2014, a total of 24 incidents involving nuclear material thefts and smuggling have been recorded in all three Baltic states (see Figure 3). Although this number is relatively small, Lithuania accounted for 14 out of the 24 incidents, the last one of which was recorded in 2009. In half of these cases (mostly in the beginning of the period of analysis) Lithuanian citizens were involved in nuclear smuggling, while the rest of the incidents involved radioactive materials or contaminated metals being transported through Lithuanian territory (including the last three cases). Overall, Lithuania was mostly involved in cases of enriched uranium smuggling, while in Latvia and Estonia attempts to transfer or sell stolen cesium-137 were more common.

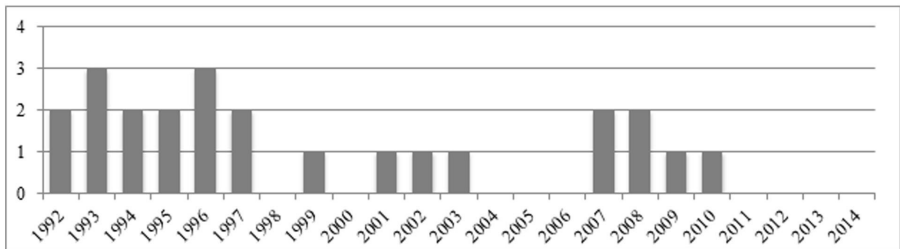


Figure 2. Annual Number of Radiological/Nuclear Material Trafficking Incidents in the Baltic States²⁴

²² Paton Walsh N., "Six Arrested, One Sought in Radioactive 'Dirty Bomb' Plot," *Guardian*, June 1, 2002.

²³ Skatikaitė R., "Atominę jėgainę saugojo vagys" ["Nuclear Power plant was Guarded by Thieves"] *Kovo* 29, 2011, *Verslo Žinios*, <http://lzinios.lt/lzinios/Lietuvoje/Atomine-jegaine-saugojo-vagys>, 29 09 2015 (in Lithuanian).

²⁴ This graph has been compiled based on data from the following sources: Nuclear Threat Initiative (NTI), NIS Nuclear Trafficking (1991-2012), <http://www.nti.org/analysis/articles/2012-nis-nuclear-trafficking/>, 16 09 2015; Schmid A. P. and Spencer-Smith Ch., "Illicit Radiological and Nuclear Trafficking, Smuggling and Security Incidents in the Black Sea Region since the Fall of the Iron Curtain – an Open Source Inventory," *Perspectives on Terrorism*, 2012, Vol. 6 No. 2.; CNS Global Incidents and Trafficking Database 2015, <http://www.nti.org/analysis/reports/cns-global-incidents-and-trafficking-database/>, 16 09 2015.

The neighboring Kaliningrad region is another potential source of nuclear smuggling risk for Lithuania. Several incidents have been reported in the area, mostly involving criminal elements from Russia or other FSU republics. For instance, in 1994, three Russians were detained in Kaliningrad after attempting to sell an unspecified geological device weighing 60 kg and containing radioactive elements.²⁵ In 1996, 7 kg of enriched uranium was stolen from a Russian Pacific fleet base in the sea of Okhotsk. 2.5 kg of this material subsequently found its way into Kaliningrad in the form of contraband.²⁶ Again, thinking that the 1990s' wave of dangerous contraband has subsided would be a mistake. In 2007, a citizen of Ukraine was detained in Georgia, carrying uranium that he had acquired from a Russian citizen in Kaliningrad in 1991.²⁷

Seeing how Russia is employing criminal connections to destabilize Ukraine and Georgia,²⁸ and provoking NATO and the Baltic states with pointed emphasis on nuclear deployments in Kaliningrad,²⁹ an increase in nuclear, as well as other types of contraband in this region could become yet another means of Russian political pressure. For instance, in the 2014 Estonian Internal Security Services emphasized that Russia is actively using criminal groups to expand its influence abroad, and called on the Baltic states to engage with the previously under-appreciated link between organized crime and national security.³⁰ Furthermore, Europol has identified the Baltic states among the principle hubs of organized crime in the EU,³¹ with Lithuanian gangs said to cultivate a particularly well-developed international criminal network and acting as one of the main transit hubs for counterfeit cigarettes smuggled into Europe (frequently through or from Kaliningrad).³² Therefore, there is a growing risk that as Slavic criminal elements utilize these connections and increase their

²⁵ Trifonov K., "Russian Official Admits Nuclear Smuggling," *Reuters*, August 19, 1994.

²⁶ Lee R. W. III, *Smuggling Armageddon: The Nuclear Black Market in the Former Soviet Union and Europe*, New York, NY: Palgrave Macmillan, 1998, p. 68.

²⁷ Kupatadze A., "Organized Crime and the Trafficking of Radiological Materials: The Case of Georgia," *Nonproliferation Review*, Vol. 17, 2010, p. 219-234.

²⁸ Galeotti M., "How the Invasion of Ukraine is Shaking up the Global Crime Scene," *Vice News*, November 6, 2014, <http://www.vice.com/read/how-the-invasion-of-ukraine-is-shaking-up-the-global-crime-scene-1106>, 06 07 2015.

²⁹ Isachenkov V., "Russia is Putting State-of-the-art Missiles in its Westernmost Baltic Exclave," *Associated Press*, May 18, 2015, <http://www.businessinsider.com/russia-placing-state-of-the-art-missiles-in-kaliningrad-2015-3>, 01 10 2015.

³⁰ Estonian Internal Security Service, "Annual Review 2014," https://www.kapo.ee/cms-data/_text/138/124/files/kapo-aastaraamat-2014-en.pdf, 30 09 2015.

³¹ Europol, "EU Organised Crime Threat Assessment 2011," https://www.europol.europa.eu/sites/default/files/publications/octa_2011.pdf, 28 05 2015.

³² Gutasukas A., "Lithuania," in Kego W. and Molcean A., (eds.), *Russian Organised Crime: Recent Trends in the Baltic Sea Region*, Institute for Security and Development, 2012, p. 78-87.

presence in Lithuania, the country could become part of the logistical chain in nuclear smuggling schemes. There is also another plausible scenario involving less centralized control. Historically, the ports of Odessa and Sevastopol³³ have been a haven for a large number of former Russian special operatives, who leverage their bureaucratic and criminal connections and infrequent inspections of the navy vessels to profit from moving various types of contraband.³⁴ As new organized crime elements (including large Russian gangs) establish themselves in these territories,³⁵ the navy connections and logistical capabilities could be put to use for moving nuclear contraband.³⁶ Furthermore, just like in the 1990s, these smuggling operations could come to include the Russian Baltic fleet stationed in Kaliningrad.

4. Incidents in Ukraine and the Neighboring Region

Scholarly literature often distinguishes the Black Sea region (especially Georgia and Moldova) as particularly problematic in terms of illicit smuggling of radioactive materials facilitated by continuing internal turmoil, as well as unrest in their separatist regions of Abkhazia, South Ossetia, and Transnistria.³⁷ As these states join the US in actively countering proliferation of dangerous materials, border posts are strengthened and efforts go into fostering security culture locally. Consequently, a larger portion of occurring nuclear smuggling cases gets reported, although it is not clear whether the volume of

³³ Sevastopol is the home port of Russia's Black Sea fleet.

³⁴ Freeman, C., "Ukraine's smugglers, the real-life Lords of War," *Telegraph*, April 4, 2014, http://blogs.telegraph.co.uk/news/colinfreeman/100266350/ukraine-crisis-battle-lines-are-being-drawn-in-the-black-seas-smuggling-wars/#disqus_thread 10 07 2015.

³⁵ The Mogilevich and Solntsevo gangs are particularly worth noting – not only for their rapidly growing penetration of the region, but also for their well developed international network of criminal connections and previous attempts to get involved in smuggling radioactive materials (see, e.g., O'Brien M., "Solntsevskaya Bratva," 2012, <http://research.ridgway.pitt.edu/wp-content/uploads/2012/05/SolntsevskayaBratvaPROFILEFINAL.pdf>, 29 09 2015; O'Brien M., "Mogilevich Group," 2012, <http://research.ridgway.pitt.edu/wp-content/uploads/2012/05/MogilevichGroupPROFILEFINAL.pdf>, 29 09 2015; Sterbentz Ch., "Poisoned KGB Agent Said Putin Has A 'Good Relationship' With One Of The World's Top Mobsters," *Business Insider*, January 23, 2015, <http://www.businessinsider.com/semion-mogilevich-relationship-with-putin-2015-1>, 18 07 2015; Galeotti, M. "Crime and Crime: Criminals as Allies and Agents," *Radio Free Liberty*, 2014; Williams P., "Intelligence and Nuclear Proliferation: Understanding and Probing Complexity," *Strategic Insights*, Vol. 5 No. 6, 2006.

³⁶ Freeman C., "Ukraine's Smugglers, the Real-life Lords of War," *Telegraph*, April 4, 2014, http://blogs.telegraph.co.uk/news/colinfreeman/100266350/ukraine-crisis-battle-lines-are-being-drawn-in-the-black-seas-smuggling-wars/#disqus_thread, 19 07 2015.

³⁷ Zaitseva L. and Steinhausler F., "Nuclear Trafficking Issues in the Black Sea Region," Non-proliferation Papers No. 39, EU Non-proliferation Consortium, April 2014; Maj. Gen. Lawlor B. (ret.), "The Black Sea: Center of the Nuclear Black Market," *Bulletin of the Atomic Scientists*, 2011, Vol. 67, p. 73-80.

such occurrences has declined. The West continues to view proliferation of nuclear materials and related technologies as a high priority threat, fearing a shift of trafficking routes towards Ukraine and westward. According to the data published by NTI and CNS, over the period of 1992-2014, the number of nuclear smuggling incidents in Ukraine far exceeded those that occurred in Georgia (51) and Moldova (20).³⁸ This suggests that Ukraine may be underappreciated as a problem area in this respect, with the situation likely to grow worse as the crisis continues.

Between 1992 and 2014, there were at least 78 instances of radioactive materials' smuggling (nearly half of which unfolded over the last decade)³⁹ unfolding in Ukrainian territory or involving Ukrainian citizens – an average of 3-4 incidents each year. One-fifth of these cases involved thefts and attempted sales of industrial and medical equipment using radioactive elements. There were 21 recorded cases involving attempts to illicitly divert, transport, or sell cesium-137 and two cases involving cobalt-60. There were also instances of thefts from nuclear power plants and attempts to sell spent nuclear fuel: 15 recorded cases involved uranium of varying levels of enrichment, three involved plutonium, and another five involved unidentified spent fuel sources.

The ongoing conflict over Crimea and other Ukrainian territories has compromised the country's ability to register nuclear smuggling incidents, particularly given that not every such incident was disclosed even during peacetime. Furthermore, the difficulties in ensuring continuous border security during conflict, reduced financing for customs officials and border patrols, and the overall bureaucratic turmoil, also cast doubt on Ukraine's ability to stop (not just accurately report) the nuclear contraband – particularly in light of the overall increase of criminal activity in the area and the environment that is increasingly suitable for nuclear smuggling.

Of particular concern is the growing involvement of criminal elements in attempted diversions of and trade in radioactive materials in Ukraine. Since 2002, six such cases have been reported. That is 15% of radioactive mate-

38 Nuclear Threat Initiative (NTI), NIS Nuclear Trafficking (1991-2012), <http://www.nti.org/analysis/articles/2012-nis-nuclear-trafficking/>, 16 09 2015; Schmid A. P. and Spencer-Smith Ch., "Illicit Radiological and Nuclear Trafficking, Smuggling and Security Incidents in the Black Sea Region since the Fall of the Iron Curtain – an Open Source Inventory," *Perspectives on Terrorism* (2012), Vol. 6 No. 2.; CNS Global Incidents and Trafficking Database 2015, <http://www.nti.org/analysis/reports/cns-global-incidents-and-trafficking-database/>, 16 09 2015.

³⁹ Some sources include the incidents involving scrap metal contaminated with radioactive elements; in addition, sometimes the case gets recorded twice – first referring to the diversion and then – recovery of radioactive materials; according to NTI, in 2011 24 instances of increased radiation were reported in Ukraine's Boryspil airport, although no details have been provided about their nature or actual level of radiation.

rial smuggling cases recorded there in the past decade. This emerging trend is highly unusual, compared to the global nuclear smuggling tendencies. As previously noted, criminal groups tend not to get involved in this trade due to the high risk of compromising their regular sources of income (e.g., smuggling drugs or counterfeit cigarettes). It is also worth noting that in the two incidents reported in 2010, where members of criminal organizations were involved in trading radioactive materials, most persons participating in the logistical chain had prior criminal convictions. This stands in contrast to global nuclear smuggling trends that show recidivism to be a particularly rare phenomenon, with most offenders having no prior criminal record.

The CNS 2015 annual review of global incident and trafficking trends noted that most cases reported over the period of 2013-2014 involved thefts of radioactive sources used in industrial and medical equipment (incidents involving nuclear materials, i.e. uranium, plutonium or thorium isotopes, constituted less than 10% of all known cases).⁴⁰ Notably, the report suggested that the risk of theft was particularly high during transportation of such equipment (e.g., retiring old devices). Turning back to the situation in Ukraine, security of non-strategic objects and sites (e.g., cancer treatment facilities or construction sites) has likely grown weaker under the current turmoil, making the dangerous materials stored at such locations easier to access; for the same reason, transit security also seems to have been on a decline. Thus, in an environment where opportunities for theft and transit of nuclear materials grow increasingly abundant, and groups with previously demonstrated interest in such materials are increasingly present in the region, it is particularly important to follow these trends closely as they unfold, noting the indicators of possible threat increase and accurately calibrating preventive measures.

In case of Ukraine it is also worth considering the opening up of illicit trafficking routes for dual-use materials and technologies sought by proliferating states (e.g., North Korea). Several US security agencies have indicated that Ukraine has played an important role in logistical chains for moving dangerous contraband between North Korea and Iran since 1995. In a number of reported instances (the last one in 2013) local planes were used to transport ballistic missiles and their components, RPGs, and MANPADS between these two countries.⁴¹ Brokers and intermediaries, facilitating illicit procurements

⁴⁰ "CNS Global Incidents and Trafficking Database: Annual Report 2014," James Martin Center for Nonproliferation Studies, April 2015, p. 6.

⁴¹ Stack, G. "Smuggling Suspicions and Organized Crime Cast Shadow over Ukraine's Defence Industry," *BNE Intellinews*, November 18, 2014, <http://www.bne.eu/content/story/smuggling-suspicions-and-organized-crime-cast-shadow-over-ukraines-defence-industry>, 19 07 2015.

for these and other countries, are always on the lookout for new territorial and logistical links to Western Europe. The situation in Ukraine makes it an increasingly attractive target for such smuggling operations.

Conclusions

The article discussed current international trends in nuclear smuggling and the Baltic experience with these threats from a historical perspective, emphasizing their changing nature in the aftermath of events in Ukraine. Traditionally, Lithuania has treated the risk of nuclear smuggling as less acute, and thus far the country has not been targeted by ideological groups seeking to use radioactive materials for blackmail or an attack. However, in the face of shifting trafficking routes and a new dynamic in nuclear smuggling, it is important to respond to the changing nature of this risk.

Unlike the threat of a military or terrorist attack – low-probability, but high- and immediate-consequence events – nuclear smuggling is a threat that grows slowly, with enabling factors gradually lining up across a broad spectrum of illicit activities. The article presented the components and catalysts of nuclear smuggling – a region destabilized by conflict, restructuring of the criminal elements, and intersection of illicit trafficking routes, enabling the formation of new criminal entities and opening up new logistical opportunities. All of these factors and trends can already be seen unfolding in Ukraine. As their territorial spectrum continues to expand, Lithuania could once again find itself at the intersection of nuclear trafficking routes. It is therefore important to raise awareness of the related risk factors and the interplay between them, carefully monitoring the criminal world for early indicators of change and actively engaging in preventive measures. Just because a radioactive cargo has not yet reached a Lithuanian border post, the indicators of trends potentially leading up to that should not be ignored.

Countering the smuggling of dual-use materials presently appears to be the weakest link in Lithuania's nonproliferation efforts. Lithuanian manufacturers, service providers, and carriers are not sufficiently informed about this threat, and businesses are not actively encouraged to screen for suspicious transactions and requests. Ensuring greater cooperation between public and private sectors is of particular importance in countering illicit flows of dual-use materials. In the financial sector, the situation is somewhat better, due to rigorous international control, although there is still a need for greater cooperation with authorities in identifying suspicious transactions potentially related to smuggling of dual-use or radioactive materials.

Preventive efforts should also include closer monitoring of the local organized crime elements for possible new connections to criminal or terrorist groups, particularly to groups acting from Russia or otherwise related to the Slavic criminal world. International experience shows that it is also important to continue monitoring local organized crime groups in decline. Having little to lose, such groups tend to be less risk-averse, and their substantial experience and wide network make them suitable candidates to join a nuclear smuggling operation.

With the help of international partners, Lithuania continues to strengthen its capabilities to counter potential threats from the Eastern neighborhood by investing in improvements of critical infrastructure resilience (including the INP), seeking to ensure continuous security of nuclear materials in stored its territory, and developing capabilities to detect such dangerous materials at the border. However, security of other radioactive sources has thus far not received comparable levels of attention. In the short term, securing old industrial and medical equipment to prevent theft during transfer merits greater consideration, and in the long term it is worth considering transition to alternative technologies.⁴² Although the use of such stolen radioactive materials on Lithuanian soil is perhaps of a lesser concern, a radioactive cargo seized abroad and connected to a theft from Lithuania would discredit the country considerably.

In implementing the measures discussed above, the key to success will be ensuring greater cooperation between Lithuania's security structures, other local agencies that hold the relevant competencies, and the public and private sector. In ensuring long-term security, insights from Western partners that previously have encountered similar issues, and their cooperation in curbing nuclear smuggling through the Baltic territories, will be of great help. In many respects Lithuania will prove a capable partner for other Eastern European states struggling with this problem. Effective prevention will require in-depth engagement with key aspects of regional security and a collective response to the catalysts of dangerous contraband.

Vilnius, November 2015

⁴² For more details, see Murauskaite, E. and Pomper, M., "One Way to Fight Radiological Terrorism: Alternative Technology," *Bulletin of Atomic Scientists*, March 18, 2014.