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34. Jozef Goldblat, "Nuclear-Weapon-Free Zones: A History and Assessment," *The Nonproliferation Review* 4 (Spring-Summer 1997), p. 31.
35. Bukharin, p. 134.
36. "The Nuclear Weapons Complexes: Meeting the Conversion Challenge," p. 11.
37. Telephone interview with MPC&A program manager, Los Alamos National Laboratory, 19 September, 1997.
38. See John Diamond, "Rep. Rips Lax Nuclear Security," *Washington Post*, [Online] <http://www.washingtonpost.com>, 31 October, 1997.
39. See "Statute of the Interagency Commission on Information Security of the Russian Federation Security Council," *Rossiiskaya gazeta*, 2 October, 1997, p. 4; in FBIS-SOV-97-293 (20 October 1997).
40. This recommendation is credited to Janne Nolan, a senior fellow at the Brookings Institution. See Joint Economic Committee, *Arms Trade and Proliferation in the Middle East: Hearing Before the Subcommittee on Technology and National Security of the Joint Economic Committee*, 102<sup>nd</sup> Congress, 2<sup>nd</sup> Session, 13 March, 1992, p. 36.

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## PREVENTING THE THREAT OF NUCLEAR TERRORISM: THE CASE OF RUSSIA

By Vladimir Orlov

### Introduction

In the Soviet Union - from the first nuclear test in 1949 to the Lithuanian crisis of 1990 which heralded the State's dissolution - there were many factors guaranteeing the secure protection of fissile materials (not to mention nuclear warheads) against any unauthorized access. Among these factors were: the iron curtains of the State's borders, the stability of the domestic political situation, the total control over the personnel of strategic nuclear facilities, and the immediate and sufficient financing of the "nuclear shield of the motherland" which made work for the nuclear industry *hors-concours* (1). Very little attention had been paid to the issue of preventing "domestic enemies" such as political terrorist groups, ethnic radical nationalists, or organized criminals from attempting to smuggle fissile materials, radioactive wastes, chemical weapons, nuclear warheads, or technologies. The reason was simple: until 1990, criminal groups were not well organized, while political opponents of the regime were using peaceful democratic ways to fight communism. The only potential concern of domestic origin was separatist nationalist radicalism (2). Much more effort had been made, in particular in the 1970s and early 80s, in preventing potential sabotage from the imperialist West.

In the early 1990s, the situation changed dramatically and almost overnight. The imperialist West, and primarily the United States, is currently the key donor of Russian efforts to improve the physical protection, accounting and control of at least several dozen Ministry of Atomic Energy (Minatom) facilities, and very few Russians, even among the communist hardliners who are still active in the Russian military-nuclear-industrial complex, have objections to this assistance, agreeing that it represents a real step in cooperative nuclear threat reduction.

At the same time, in the first half of the decade, Russia and the Commonwealth of Independent States (CIS) continued to be relatively free of terrorist activity. In 1990-95, the total number of international terrorist incidents were: in Africa - 107; in Asia - 230; in Europe (excluding Russia and CIS) - 934; in Latin America - 782; in the Middle East - 464; in North America - 5; and in Russia and CIS - 36 (3). The growth of national radicalism and the appearance of religious sects similar to Aum in Japan, as well as ethnic wars



and low intensity conflicts in the geopolitical space of the Former Soviet Union, together with the absence or inefficiency of border controls within the CIS and the large number of poorly guarded strategic facilities, has made Russia and her CIS neighbors more vulnerable to the threat of terrorism involving weapons-of-mass-destruction (WMD) than other regions of the world, even those with a higher incidence of terrorist activity.

On 27 June, 1996 President Yeltsin signed, together with the G7 leaders, the Lyons Declaration on Terrorism which said: "We consider the fight against terrorism to be our absolute priority. ... [S]pecial attention should be paid to the threat of utilization of nuclear, biological and chemical materials, as well as toxic substances, for terrorist purposes" (4).

### Incidents and Responses

Russian officials for a long time denied any serious flaws or lapses in the nuclear security of Minatom-(5) or Ministry of Defence (MOD)-operated (6) installations. Moreover, they insisted that the "anti-smuggling campaign" was directed by US and German intelligence services and had a pure economic objective - not to permit Russian nuclear-exporting State companies to appear and successfully compete in the world market (7). Only in April 1996 did Russia for the first time officially recognise that the problem of nuclear smuggling - and, in other words, the possibility of unauthorized access to nuclear installations - was not created by Russia's enemies but was also a real headache for the Russian political and military leadership (8).

Although it is partly correct that some elements of the two "anti-smuggling campaigns" in the West in 1992 and in 1994 were inspired by purely political motives and not on well-checked and proven facts, it would have been absolutely wrong to declare that the threat of nuclear leakage in Russia was artificial. In 1995, *Yaderny Kontrol* editors disclosed two cases of stealing nuclear materials in the North Fleet, both involving enriched Uranium - in one case, with 36% enrichment (9). After that, government officials acted in three different ways. First, they invested some modest funds to improve the Material Protection Control & Accounting (MPC&A) situation in the North Fleet. Second, they requested US assistance, which they finally received - by the end of 1997, the establishment of modern MPC&A systems at two storage facilities is expected to total \$5 million (10). Third, Russian officials prohibited the dissemination of all information relating to cases of nuclear smuggling and leakage, explaining that this was necessary

"in interests of national security". In fact, they have been concerned that organized crime or ethnic terrorists might benefit from detailed information about where the weakest points of current physical protection are.

Notwithstanding these efforts, cases of nuclear leakage continue to happen. In 1996, the Tomsk Institute of Nuclear Physics of the Tomsk Polytechnical University Gosatomnadzor (Russian State nuclear regulatory body under the President, known as GAN) discovered the loss of one fuel assembly with uranium of 90% enrichment and containing 145 grams of <sup>235</sup>U. The material was never recovered.

Accurate accounting at the facilities is an even more serious headache for the federal government. This year, in Murmansk, nine cases of inaccurate data about quantities of fissile materials (fuel rods, spent nuclear fuel) were detected. E.g., the amount of fuel rods at the floating bases Imandra and Lotta was "significantly less" than indicated in the accounting documents (12). In 1996, as a result of six GAN inspections at the Mashinostroitelny Zavod (Machine-Building Plant) of Elektrostal, 40 minutes by car from Moscow, checks with the weighting of nuclear materials demonstrated three cases of surplus low-enriched uranium (LEU) (total weight 8.4 kg) and three cases of surplus highly-enriched uranium (HEU) (total weight 895 g) compared to the accounting documentation at the facility which produces nuclear fuel rods (13) and which is now in the process of being updated by the US MPC&A computerized system.

It is clear, to take one of these examples, that the 145 grams of weapon-grade HEU from the Tomsk Institute could be smuggled by criminals with either commercial (which seems less probable) or terrorist purpose. At the same time, it is important to mention that even now Russian officials mostly continue to divide the problem into two parts. On the one hand, to judge by interviews with many Federal Security Service (FSB), Minatom and MOD officers, they do recognize how significant the problem of threat of nuclear terrorism in Russia is - in particular, after terrorist acts committed by separatist Chechens in 1995-1996; on the other hand, they do not recognize that this problem has its roots in a weakened system of accounting, control, and physical protection of both weapon-grade fissile materials and nuclear warheads.

As far back as 1992, the Russian Ministry of Security publicly warned that the threat of nuclear sabotage was not only a scenario for Hollywood movies. Representatives of the ministry wrote in



an article published in a governmental daily that between 1990-1992 the "directors of Kursk, Smolensk, and Rostov NPPs (nuclear power plants) received letters with threats to explode or to seize the plants" (14).

Then, chemical weapons (CW) came on the scene. In 1995, Ivan Kivelidi, a leading Russian businessman, head of the 'Roundtable of Russian Businesses' and of Rosbusinessbank, was killed in his Moscow office. Governor Dmitry Ayatskov of Saratov oblast later stated that a top secret modern chemical substance from Shikhany - a major storage facility of chemical weapons in Russia - was used by the killers (most probably, phosphororganic or amedefira-phosphoro-acidic substance). His sensational statement was not denied by investigators. Although Stanislav Nesterov, head of local administration in Shikhany, said "[t]his is a modern CW with a secret formula. I do not know any confirmed cases of selling it at or near the 'NII Orgsintez' Institute" (15), the investigation has been delayed "for the reasons of national security"(16).

During his trail in Tokyo, one of the Aum leaders stated that the sect had acquired special sarine gas technologies in Russia, with the direct assistance of the former Secretary of the National Security Council, Mr. Lobov (17), although Russian law enforcement structures which have carried out their own investigation have never confirmed those statements.

Nuclear sabotage nearly became a reality in Russia in Spring 1997 when an attempt to commit a terrorist act at an NPP was prevented by the FSB. An anonymous caller telephoned the President's office and tried to blackmail the government with threats to sabotage a NPP. According to the FSB, it was not a bluff, and a terrorist could damage an NPP. The blackmailer was arrested, and investigations have not yet been finalized although his arrest was declared as "victory" by the FSB head Nikolai Kovalyev (18).

"Caucasian terrorism" has become the Number One threat for federal authorities - in particular, in periods of attacks by federal troops on military bases of Chechen separatists in late 1994 and in 1996. Numerous e-mail requests and descriptions of explosives and CW production materials were registered as being sent from Chechnya addresses as well as from the Caucasian Diaspora in the Middle East (19). On 21 November, 1995, Chechen terrorist Shamil Bassaev put a container with radioactive cesium-137 in the park of Izmailovo, in Moscow. The only practical, but very effective, purpose of putting that source of low radiation in Moscow was to alarm Russian

public opinion (20) which, mainly as result of the 'Chernobyl syndrome', usually interprets "radioactive" as synonymous with "horrible".

Finally, Chechen terrorist leader Bassaev switched from radioactive threats to nuclear ones: "We have no nuclear weapons [in Chechnya. But in 1993] I was offered...a nuclear explosive for \$1,500,000"(21).

The Caucasian region has also produced some financially influential and politically ambitious ethnic-criminal mafias - for example, the Ingushian, Abkhazian, and Kurdish groups. In some of these areas, such groups can freely transfer drugs, arms, and strategic raw materials. Anyone concerned about the smuggling issue should pay attention to Nazran International Airport. Nazran is a small town and capital of the Republic of Ingushetia which is part of Russia but has no declared border with its neighbor Chechnya, has official duty-free status and is the center of criminal activities in the region. From the airport, there are regular and charter flights to Turkey, Greece and other States of the Mediterranean and the Middle East. At the airport checkpoints, there is practically no control over goods transferred. Of particular concern are charter flights from Nazran to Antalya (Turkey) and Athens.

The Komsomolets nuclear submarine, buried, after the accident of 7 April, 1989, at a depth of 1.685 metres in the Norwegian Sea with two nuclear warheads on board (total 6 kg Pu-239 and 116 kg enriched uranium) has also become subject of concern. As an expert put it, "terrorists will need a few hours to take one warhead, about one day...to take the second one. Unauthorized activities in this area have recently been detected"(22).

Federal law enforcement agencies have become more and more worried of intensive and ever-developing ties and coordination between, on the one hand, ethnic terrorist groups and organized crime in Russia, and, on the other hand, the international criminal community. Currently, most of the international cooperation of Russian mafias is directed to financial operations, drug trafficking and illegal conventional arms sales. As a result, the Russian criminal community has established close connections with Italian, Colombian, and Arab criminal and clandestine groups. Routes of illegal trade connect Badakshan (Tajikistan), Abkhazia, and Chechnya, with Ingushetia with Cali, Antigua, Peshavar, Yemen, Laos, and Estonia (23).

As General Valynkin, recently nominated as Head of the 12th Main Directorate (Nuclear Weapons)



of the Russian Defense Ministry, has stated, "We cannot exclude possibilities of unauthorized access [by individual terrorists and terrorist groups] to Russian nuclear warheads in storage or in transportation in the future". He believes "it could lead to a nation-wide crisis and would be impossible to prevent by the instruments we [at the Defense Ministry and Russian Government] now have" (24). Moscow Mayor Yuri Luzhkov said that he is "concerned about possible accidents and even sabotage at the nuclear facilities in Moscow" (25). And according to the former FSB Director General Barsukov, "attempts of sabotage against NPPs, other nuclear facilities, and CW facilities, as well as to seize WMD are quite possible." (26)

### **The Need and Potential for a More Effective Response**

To sum up this welter of disturbing evidence - in the mid-90's Russia became one of the most vulnerable areas of the world in terms of representing both the subject and an object of the WMD threat (27). The key questions are: what should be done to avoid the real catastrophe, what has been done already by the Russian government, and which efforts have become a success and which have failed.

Russia still has no law on terrorism. This means that even definitions of what terrorism is vary. According to the draft law on terrorism adopted in its first reading by the State Duma in September, 1997, terrorism is defined as an attempt upon the life of political and State leaders, using or threatening violence against citizens or institutions with the aim of destroying constitutional order, destabilizing State order, and/or making the State follow terrorist demands (28). Because the President's office has had numerous objections to the current draft (suggested by a communist, Viktor Iluykhin, and a member of Zhirinovski's liberal democratic party (LDPR), Alexei Mitrofanov) it is unlikely that the law, first initiated in 1992, will be signed by the President and enter into force in the next few months.

The draft law on terrorism does not include any special provisions on WMD terrorism and measures to prevent it. The situation is currently regulated in part by the Law on the Creation, Functioning, Destruction and Security of Nuclear Weapons, adopted by the State Duma this September; in particular, by its Chapters 3 - "State management and regulations of activities in the area of security of nuclear weapons" (Articles 17 to 20) - and 5 - "Regulations of relations in cases

of accidents with nuclear weapons and at the nuclear defense facilities" (Articles 24 to 26).

The Ministry of Defense has the following major concerns related to the WMD terrorism threat: the possibility of nuclear accident by "technological terrorists" (resulting in an explosion of radioactive materials at the facility and radioactive contamination akin to that caused in the Chernobyl disaster); an attack by a terrorist group with the aim of seizing fissile materials of category No.1-material - material which creates the real threat of construction of nuclear device(s) by terrorists; and operations by criminals from non-Russian CIS countries who worked for the Soviet Nuclear-Technical Forces in the 80s and know characteristics of the facilities, transportation details, and ways of obtaining access to warheads (29).

As results of analysis made at the PIR Center in 1996-1997 show, the most vulnerable points, equally related to fissile materials and nuclear warheads at Minatom and MOD storage facilities, are:

- insufficient, and in some places poor, physical protection;
- transportation; and
- social tension and lack of a safeguards culture.

We will look at each of these in turn.

#### **Physical Protection**

As for the physical protection (PP) of Minatom facilities, despite developing Russian-US cooperation 70% of installations are in use longer than their instructions stipulate. 20% are in use from 2 to 3 times longer than their instructions stipulate. These installations should be dismantled immediately - it is now impossible to maintain their capabilities. This completely outdated equipment includes communications and alarm systems. Most of the checkpoints still have no metal and/or nuclear and/or explosive detectors.

As First Deputy Minister of Minatom Lev Ryabev put it, "PP of the majority of the facilities does not meet requirements of the regulations which have entered in force in Russia in recent years, [and...] PP of nuclear installations and materials is not efficient against terrorist attacks. [...] PP of military nuclear facilities does not prevent accidents with explosion of nuclear materials and radioactive contamination of the territories of up to 100 km from the facility" (30). Thousands of individuals fired from the facilities and currently unemployed still have their permission-passes to enter the facility. Private companies (trade, other businesses) are located in the territories of secret



nuclear facilities and research institutes, and there is no real control of their activities and their personnel (31).

### **Transportation**

Transportation has become a critical problem, mostly for the MOD, in the process of the ongoing dismantlement of nuclear warheads. Nuclear warheads are traditionally transported only by land in Russia. Notwithstanding, there is lack of special armored anti-fire trucks. In late 1996, military units had only 16,5% of the trucks they required. Many of the railcars have imminent expiry-dates. By the year 2000, the MOD is expected to have only 362 railcars. The total number of railcars produced for the last four years is 38; in the same period, 223 railcars were destroyed because they had passed their expiry-date (32). The railroads used for nuclear-weapons transportation are also a problem: they have never been modernized before. In every facility, there are about 10-12 km of such railroad.

### **Social Tension and Lack of a Safeguards Culture**

Social tension reached its peak in MOD facilities in late 1996, and in Minatom-operated closed cities and NPPs in the summer of 1997. Results of an investigation into State supervision of the security of nuclear weapons at one of the facilities of the 12th Main Directorate of the Defense Ministry last fall demonstrated that officers and soldiers were paid no salary for three months and received no compensation for food during eight months: the military who worked with nuclear warheads suffered from malnutrition, severe enough in some cases to cause fainting fits. Officers had no special slippers for work in the special area with nuclear warheads (it is prohibited to work in ordinary footwear, and there were no funds for slippers, so the officers who were paid nothing were taking money from their wives' salaries to buy slippers).(33)

In June 1997, engineers from the Smolensk NPP organized a march to the Moscow White House, the government's headquarters, and demanded salary increases as well as funds for safety and security improvements. Their action enjoyed the support both of public opinion and specialists from other NPPs and met with sympathy from numerous Minatom-related research institutes.

Beginning this summer, the Russian government implemented a series of efforts to reduce debts by the States to the Minatom and in particular to those MOD nuclear-related facilities where the personnel was not receiving pay on time. This effort is currently bringing some positive results,

and there are early indications that the tension in the majority of nuclear facilities and closed cities may be set to decrease.

### **Conclusion**

To prevent the threat of WMD-terrorism, and particularly nuclear terrorism, Russia should implement a number of both urgent and long-term measures. They should include: urgent finalizing and entry-into-force of the Law on Terrorism; allocation of more funds for the improvement of physical protection of fissile materials and warheads as well as their transportation for Fiscal Year (FY) 1998 and FY 1999; development of national data banks; improvement of MC&A of fissile materials; improvement of the safety culture in facilities and enterprises dealing with WMD weapons and components, and technologies; enforcement of intelligence activities against terrorist groups; control over international travel of known terrorists and suspects; measures to combat forgery of documents (ID, passports); limitation of sources of funds for terrorist groups where possible; legal consultations and data exchange among the States; increased interagency coordination, in particular with regard to data exchange, with the leading role to be assumed by the recently founded Interagency Antiterrorism Commission (34); and the training of special anti-WMD terrorism groups.

The latter measure is one of the most critical elements in preventing the threat. The structure which is responsible for anti-nuclear terrorism activities has the name Vympel and also known as the 'V' Directorate of the FSB. This August, Vympel organized an exercise codenamed 'Atom-97', as part of its training to prevent a potential terrorist attack on the Kola NPP and at the atomic icebreaker *Siberia* (both located in the Russian North-West). In the exercise, "terrorists" managed to conquer the NPP for some time but were not able to explode it or create any significant radioactive danger (35). In the case of the icebreaker, "terrorists" attacked and occupied the vessel and took hostages. They were attacked from the ground - by the Murmansk local antiterrorist forces - from the air - by the Vympel paratroopers - and from the sea - by the Vympel military scuba divers. As Gen. Dmitry Gerasimov of the FSB concluded, "Unfortunately, the threat of nuclear sabotage in Murmansk oblast [region] still exists" (36).

Even more unfortunately, we should add that the zone at risk is not only that region but the whole of Russia.



## Notes

1. See: "Nelzya iskluchit vozmoshnost khisheniya yadernikh materialov. Stenogramma parlamentskikh slushanii" ["Nuclear smuggling should not be excluded. Record of parliamentary hearings"]. *Yaderny Kontrol* No. 34-35, October - November, 1997, p.9.
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