

Illicit Nuclear Trafficking & the new agenda

by Vladimir A. Orlov

Weapons of mass destruction (WMD) are a serious international concern and have been at least for nearly a century. After World War I, the Geneva Protocol of 1925 prohibited the use of chemical and biological warfare. The advent of nuclear weapons, with their extraordinary destructive capacity, made the proliferation of WMD an even greater concern after the Second World War.

Moreover, during the post-Cold War period the dangers of proliferation of WMD have increased due to regional tensions, the dissolution of the Soviet Union (and resulting looser controls over weapons scientists and dangerous materials), and the ready availability of sensitive technologies. More than ten States have active WMD-related programmes, and probably about ten more have capabilities to start them.

At the same time, non-State actors (transnational organized criminal communities and international terrorist networks) today are seen as playing an increasingly active role in unauthorized access to and proliferation of sensitive materials, technologies, and weapons. After 9/11, the risk of such actors using WMD components as a tool for blackmailing governments has become a real scenario, still with low probability but with highly significant — and disastrous consequences.

The international community has responded to problems and challenges in two major ways. The first has been the elaboration of multilateral international treaty regimes intended to prevent the proliferation of WMD. These include the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), the Chemical Weapons Convention (CWC), and the Biological and Toxin Weapons Convention (BWC). The second

approach has been the formation of non-treaty arrangements, generally known as “suppliers’ clubs”, aimed at preventing the proliferation of technologies and equipment that could be used by a “proliferant” State or non-State actor to develop WMD and/or delivery systems (e.g., ballistic or cruise missiles) associated with such weapons. These organisations are: the Australia Group (chemical and biological technology); the Zangger Committee and the Nuclear Suppliers Group (nuclear); and the Missile Technology Control Regime (MTCR).

A particularly important role in detecting non-compliance to nuclear non-proliferation is played by the International Atomic Energy Agency (IAEA). Its inspection mechanism has proved to be efficient and balanced even in such complex situations as Iraq.

For various reasons, these treaty and non-treaty regimes have been under severe stress in recent years. The situation demands a new international agenda of action against the proliferation of WMD. For example, within the NPT regime, nuclear-weapon States and non-nuclear weapon States frequently disagree over Treaty commitments to negotiations regarding nuclear disarmament and to provisions to prevent the diversion of nuclear materials to nuclear weapons purposes. The Indian and Pakistani nuclear weapon tests of 1998, the de facto nuclear weapon status of Israel, and the North Korean nuclear weapons programme also pose significant challenges to the NPT.

Meanwhile, States parties to the BWC have not achieved consensus on a legally binding protocol to provide the convention with a “verification” mechanism. Despite conclusion of the CWC — which mandates the elimination of an entire class of WMD and establishes an international organi-

sation and detailed verification regime to ensure compliance — many countries are suspected of possessing chemical weapons programmes. Issues of compliance are essential, and the failure to address non-compliance in a satisfactory manner is perceived as undermining the viability of the non-proliferation regime.

The growing perception that these mechanisms have been inadequate to constrain the proliferation of WMD technology and the development of increasingly longer-range missiles has led to alternative approaches. On the one hand, there has been a cooperative international approach to assist countries in the former Soviet Union that have technical and/or financial difficulties living up to their non-proliferation commitments. On the other hand, the US has also begun to place greater emphasis on deterrence and defence against these threats, as evidenced by robust programmes for counter-proliferation, such as the 2003 Proliferation Security Initiative.

The Group of Eight countries (G-8) has become an increasingly important forum for discussing WMD proliferation, notably its prevention and measures aimed at cooperative threat reduction in different regions of the globe, starting with the former Soviet Union. In June 2003, the G-8 launched a Global Partnership Program Against the Spread of Weapons and Materials of Mass Destruction. Since then, cooperative approaches towards proliferation prevention have demonstrated their efficiency, though much more work must be done.

The Threats of Illicit Nuclear Trafficking

The last decade of the 20th century put on the agenda new non-traditional threats to the international regime of nuclear non-proliferation. Among the most serious are illicit trafficking in nuclear material and nuclear terrorism. The emergence of these threats, which are no longer hypothetical but real, were magnified by the terrorist attacks of September 2001.

The threats are determined by similar factors. In the 1960s and later, development of nuclear explosive devices required titanic efforts of an entire State and it was a large-scale and expensive program. Nowadays it is much easier due to scientific and technological progress and more widely spread knowledge and technology.

Political shifts in the post-Cold War world also play a role. Small but ambitious States find it more difficult to achieve their foreign policy objectives, since they can not as easily play one superpower off another. Additionally, as the superpowers have loosened control over regional conflicts, belligerents have more temptation to gain added military and political *trumps*, e.g. with acquisition of WMD. Finally, in most cases, national governments have become less radical and, hence, some groups and political activists try to pur-

sue their goals independently and not through established power institutions.

Other reasons for illicit nuclear trafficking and nuclear terrorism are:

- › The release of a considerable number of weapons-grade nuclear materials resulting from the global process of nuclear arms reduction.
- › The aggravating conditions of obtaining nuclear materials for non-nuclear weapon States, who are found or suspected of secretly developing their own military nuclear programmes because of restrictions imposed through international systems of export control.
- › The growing number, influence and increasing financial capabilities of non-State actors in international relations, such as terrorist groups, transnational organized crime groups, ethnic separatist movements, and extremist religious cults.

The difficulties in adequately responding to such non-traditional challenges are not a headache for one State but for all States, and especially those that possess and must control nuclear weapons or complex nuclear enterprises. At the same time, it is obvious that the risk of illicit nuclear trafficking and unauthorized access to weapons-usable nuclear materials or nuclear weapons with terrorist purposes is considerably high in two States, namely the United States and Russia. They possess the largest stockpiles of nuclear weapons and nuclear materials, sensitive from the standpoint of non-proliferation, and they are engaged in a dynamic process of nuclear arms reduction.

What is Nuclear Trafficking?

The illicit trafficking in nuclear material is intra- or inter-border movement of nuclear materials that are sensitive from the point of non-proliferation (i.e. uranium with 20% enrichment and higher and plutonium, as well as related fuel cycle facilities that might be accessed illegally). Thus, it is mostly the matter of stealing 20% (or higher) enriched uranium and plutonium from nuclear fuel cycle enterprises. Once stolen, the material can be left within the country of origin (i.e. *pure* theft) or illegally transported to another State (i.e. nuclear smuggling). The latter is the most dangerous from the point of non-proliferation.

The theft and smuggling of nuclear materials can pursue different goals. One is commercial, that is, resale to the third party with the purpose of obtaining personal financial profits. Another is terrorist, namely the malevolent use of stolen nuclear materials for terrorism or blackmail. In the case of nuclear material smuggling there is a high possibility that those who acquired nuclear materials from the thief will later use it for developing a military nuclear programme

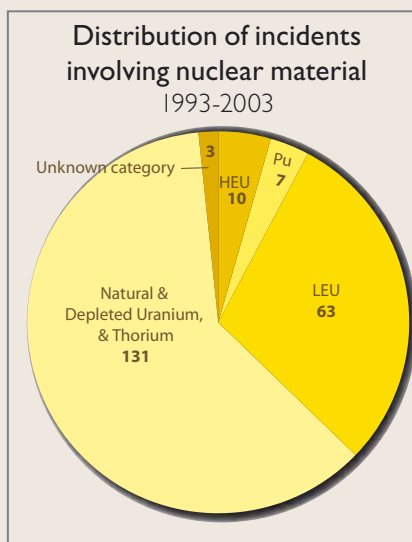
IAEA Tracks Illicit Trafficking of Nuclear & Radioactive Material

As of December 2003, the IAEA's Illicit Trafficking Database contains 540 confirmed incidents involving illicit trafficking in nuclear and other radioactive materials, which have occurred since 1 January 1993. Several hundred additional incidents (344) that have been reported in open sources, but not confirmed by States, are also tracked in the IAEA database but are not included in the following statistics. The majority of these confirmed incidents involved deliberate intent to illegally acquire, smuggle, or sell nuclear material or other radioactive material. The database also includes some incidents where actions may have been inadvertent, such as accidental disposal or the detection of radioactively contaminated products.

Of the 540 confirmed illicit trafficking incidents about 41% involved nuclear material, and 62% involved radioactive material other than nuclear material. (These figures total more than 100% because some incidents involved both nuclear and other radioactive materials.)

Incidents with Nuclear Material

As of December 2003, the IAEA database includes 182 confirmed incidents since 1 January 1993 that involved nuclear material.



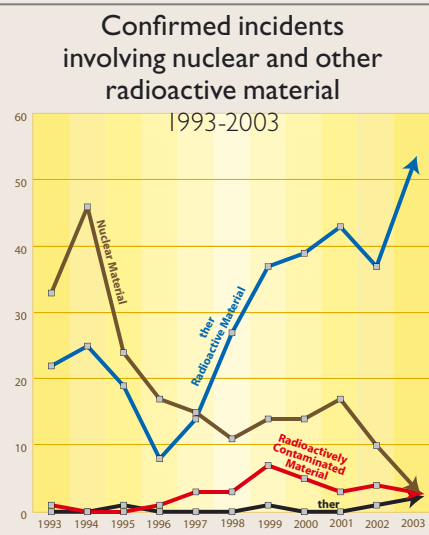
Weapons-usable nuclear material. Of these 182 incidents with nuclear material, less than 10% (18 incidents) involved highly enriched uranium (HEU) or plutonium, materials that could be used for the fissile core of a nuclear explosive device. During the first half of the 1990s, quantities of a kilogram or more of HEU were seized in a few cases, and in one case about 0.3 kg of plutonium (Pu) was seized. By contrast, no confirmed theft or seizure since 1995 has involved more than 1% or 2% of what would be needed for constructing a nuclear bomb. These small quantities are not grounds for complacency, however. Even when small quantities of such material are seized, the question remains whether they might have been samples of larger quantities available for illicit sale. Another concern is that trafficking in such materials might occur undetected.

Lower-grade nuclear materials. The overwhelming majority of confirmed nuclear trafficking involved lower grade materials. These include: low-enriched uranium (LEU), usually in the form of nuclear reactor fuel pel-

lets; natural uranium in a variety of forms and purity; depleted uranium, usually in the form of shielding material in containers of the type used to ship or store radioactive sources; and thorium in various forms including ore. While the quantities of these lower-grade materials that have been stolen or seized to date have been too small to be significant for nuclear proliferation, these cases sometimes are indicative of gaps in the control and security of nuclear material.

Other Radioactive Material

As of December 2003, the IAEA database includes 335 confirmed incidents since 1 January 1993 that involved



radioactive material other than nuclear material. In most of the cases, the trafficked radioactive material was in the form of sealed radioactive sources. However, some incidents with unsealed radioactive samples, or radioactively contaminated materials such as contaminated scrap metal, also have been reported to the illicit trafficking database and are included in the statistics. Some States are more complete than others in reporting incidents, and open-source information suggests that the actual number of cases is significantly larger than the number confirmed to the IAEA.

Radioactive sources involved in confirmed trafficking demonstrate a wide range of activity levels. The vast majority of them have been too weak to cause serious health problems if used for malicious acts.

For more information on nuclear security, see the IAEA's web pages at www.iaea.org.

of a State striving for possession of nuclear weapons. At the same time, the buyer may represent a State or a non-State actor willing to acquire nuclear weapons, and after purchasing, it will be the buyer who will carry out contraband supplies of nuclear materials.

In most cases, information about nuclear theft or nuclear smuggling shows that most trafficking involves radioactive substances that are not nuclear materials and cannot be used to produce nuclear weapons. These are primarily natural uranium and uranium dioxide, and sources of ionizing radiation. Sometimes they were intended for resale inside the country where the materials were obtained, sometimes for smuggling abroad. Such cases pose no threat from the point of non-proliferation, though they do raise fears and concerns over what have been called "dirty bombs".

The problem of analyzing illicit nuclear trafficking is complicated by the considerable amount of confidential, unverified, or exaggerated information. To a certain extent, the mass media sensationalize reports, and journalists are not always professional enough to explain to the readers the difference between highly enriched and depleted uranium, for example. In some cases, the problems of illicit trafficking are the targets for political and diplomatic games or the objects of undercover campaigns by intelligence services themselves.

Russia is often identified in the world press as a source of illicit nuclear trafficking. The reason for this was the collapse of the USSR and the suspicions of insufficient physical protection of nuclear materials and weakness of control systems. The first wave of information about nuclear smuggling from Russia dates back to 1992, and many reports were discredited or proven false.

It would be a mistake to connect the problem of illicit nuclear trafficking with any particular state (including Russia). At the same time, it would be wrong to say that there was no illicit nuclear trafficking in Russia, as some officials did in the early 1990s. The problem exists and it is universal. One cannot preclude, for example, that some weapons-usable materials have been smuggled from Western Europe and North America to Pakistan and Israel.

More Cooperation Needed

As stated by the G-8 leaders at the Moscow Nuclear Safety and Security Summit as early as 1996, illicit trafficking in nuclear material poses a global proliferation risk and a potential danger to public health and safety. The criminal diversion of nuclear material could assist States or terrorist groups to bypass the carefully crafted controls of the international nuclear non-proliferation regime and permit them to construct or otherwise acquire a nuclear or radiological weapon. The G-8 leaders admitted that the majority of cases, so far, had involved only small amounts of fissile

material or material of little use for weapons purposes, and many apprehended nuclear traffickers had been swindlers or petty thieves. Nevertheless, cases of illicit nuclear trafficking continue to occur. (See box, *IAEA Database on Illicit Nuclear Trafficking*.)

Efforts to prevent illicit trafficking in nuclear material are being reinforced. They include strengthening the first line of defense, i.e. safe and secure storage of nuclear materials and efficient measures of protection, control and accounting to prevent proliferation. They will also need to involve tightening of national export control systems.

International cooperation in this area, sensitive from the point of national security, has its limits. It is understood, however, that without international cooperation, the problem of illicit nuclear trafficking, when involving more than one State, cannot be solved. For instance, in the framework of international cooperation to prevent illicit nuclear trafficking, the G-8 established the Non-Proliferation Experts Group to coordinate its efforts with a range of intelligence, customs, law enforcement and other agencies.

The international community's response additionally should draw upon the existing instruments and organizations of the nuclear non-proliferation regime. These include universal adherence to the NPT and the Principles and Objectives agreed at the 1995 NPT Review and Extension Conference, and to the Convention on the Physical Protection of Nuclear Material, as well as application of the recommendations on physical protection made by the IAEA and the Nuclear Suppliers Group (NSG).

Cooperation within the framework of the Zangger Committee and the NSG is particularly important in the struggle against illicit trafficking. The IAEA plays a special role in international cooperation and has adopted an action plan supporting its programme to prevent illicit trafficking and nuclear terrorism. Recent proposals by the IAEA Director General for greater and more concerted action for stronger controls over nuclear materials are a sign of the challenges before the international community. They merit proactive and urgent attention.

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Parts of this essay are drawn from his work at the Geneva Centre for Security Policy in April 2004, and from a paper he authored on illicit nuclear trafficking.