

Different Faces of Security From Knowledge to Management

Edited by
Konrad Raczkowski
Walter Kegö
Marian Żuber



Institute for Security &
Development Policy

Different Faces of Security: From Knowledge to Management

**Edited by
Konrad Raczkowski
Walter Kegö
Marian Žuber**

Institute for Security and Development Policy
Västra Finnbodavägen 2, 131 30 Stockholm-Nacka, Sweden
www.isdp.eu

Different Faces of Security: From Knowledge to Management is a *Conference Report* published by the Institute for Security and Development. The Institute is based in Stockholm, Sweden, and cooperates closely with research centers worldwide. Through its Silk Road Studies Program, the Institute also runs a joint Transatlantic Research and Policy Center with the Central Asia-Caucasus Institute of Johns Hopkins University's School of Advanced International Studies. The Institute is firmly established as a leading research and policy center, serving a large and diverse community of analysts, scholars, policy-watchers, business leaders, and journalists. It is at the forefront of research on issues of conflict, security, and development. Through its applied research, publications, research cooperation, public lectures, and seminars, it functions as a focal point for academic, policy, and public discussion.

The opinions and conclusions expressed are those of the author/s and do not necessarily reflect the views of the Institute for Security and Development Policy or its sponsors.

© Institute for Security and Development Policy and The Tadeusz Kociuszko Land Forces Military Academy, 2010

ISBN: 978-91-85937-95-0

Printed in Singapore

Distributed in Europe by:

Institute for Security and Development Policy
Västra Finnbodavägen 2, 131 30 Stockholm-Nacka, Sweden
Tel. +46-841056953; Fax. +46-86403370
Email: info@isd.eu

Distributed in North America by:

The Central Asia-Caucasus Institute
Paul H. Nitze School of Advanced International Studies
1619 Massachusetts Ave. NW, Washington, D.C. 20036
Tel. +1-202-663-7723; Fax. +1-202-663-7785
E-mail: caci2@jhuadig.admin.jhu.edu

Editorial correspondence should be addressed to Dr. Bert Edström at: bedstrom@isd.eu

Contents

Introduction	5
---------------------------	----------

Different Faces of Security

The Role of the European Union as Global Security Provider	9
---	----------

Marcin Bielewicz

Safety of Local Communities in View of Threats to Public Safety	23
--	-----------

Katarzyna Sienkiewicz-Małyjurek

Problems of Arms Control and Disarmament in Asia and the Pacific Region— An Overview	52
---	-----------

Przemysław Skulski

Science in the Study of Dimensions of Security: Based on Disposable Groups of the Sociology Department at the University of Wrocław	70
--	-----------

Jan Maciejewski

Disposable Groups Ensuring the Multidimensional Micro- and Macro-scale Safety of Polish Society	77
--	-----------

Małgorzata Stochmal

New Forms of Terrorist Organization Activities	84
---	-----------

Olgierd Paszkiewicz

Nuclear Terrorist Attack as an Example of Serious Threat	93
---	-----------

Marian Żuber

Threats to the Natural Environment Resulting From Military Actions and the Development of Military Technologies	113
--	------------

Tadeusz Szczurek

From Corruption to Professional Ethics: The Case of the Polish Customs Service137
Tomasz Węgiel

Disinfection of Drinking Water and Genotoxic Risk152
Frantisek Bozek, Rudolf Urban, Renata Urbanova, Milan Caslavsky, Milos Bozek

From Knowledge to Management

Management of Tax Security Knowledge in Intra-Community Trade171
Konrad Raczkowski and Artur Krukowski

Building Solid Relationships with Customers: Working to Promote the Safety of Doing Business in the Services Sector.....191
Wioletta Wereda

The Role of Territorial Governments in Reducing Barriers of Local-scale Entrepreneurship Development— Good Practices206
Urszula Kobylińska and Ewa Glińska

Strategies of Energy Security in the Asia and Pacific Region: Outline of the Issue217
Bogusława Drelich-Skulska

The Security of Polish Electrical Power System Development237
Jerzy Tchórzewski

Natural Disasters in East Asia and Regional Cooperation in the Field of Counteracting Their Results264
Zbigniew Piepiora

Quantification of Notions in Crisis Management278
Romulad Grocki

Nuclear Terrorist Attack as an Example of Serious Threat

Marian Żuber¹

Summary: In this chapter the potential yet considerable threat of a terrorist nuclear attack is presented. The author describes the possible sources from which terrorists may obtain nuclear weapons as well as outlining the problems posed for crisis management in the eventuality of such an attack. Two scenarios of nuclear attack are analyzed: open and hidden scenarios.

Keywords: terrorism, terrorist nuclear attack, crisis management

Introduction

The phenomenon of terrorism has changed over the centuries both in the aims and methods of terrorist groups, for whom violence is the means of achieving their goals. Nowadays, it is one of the main threats to the modern world, which creates a lot of problems for those responsible for guaranteeing the safety of citizens.

For example, the European Safety Strategy of December 12, 2003,² which is the first strategic European Union concept in the context of a collective safety system, considers international terrorism to be the most serious threat, as it endangers lives, brings great costs, undermines tolerance and openness that the European societies are based on, and represents an increasing strategic threat to the whole Europe, as well as the wider world.

Terrorist organizations increasingly possess sources of considerable financing, electronic communication, and are able to wreak mass destruction.

Furthermore, the latest wave of terrorism has a worldwide range and connections with aggressive religious extremism—and Europe is both the aim and a base for terrorist groups.

¹ Colonel, Ph.D., researcher, teacher, Tadeusz Kosciuszko Military Academy of Land Forces, and Vice-Dean, Faculty of Management, Tadeusz Kosciuszko Military Academy of Land Forces, Wrocław

² *A Secure Europe in a Better World: European Security Strategy*, <http://ue.eu.int/uedocs/cmsUpload/78367.pdf>

Characteristics of Modern Terrorism

A characteristic feature of terrorism at the beginning of the twentyfirst century are the different aims that terrorists set, compared with those of their predecessors from the second half of the twentieth century. For the last twenty years, there have appeared new enemies, new motivations, and new justifications, which have caused some theories about terrorism and terrorists to have become out of date. The commonly presented view from a few years ago that "terrorists want to have a lot of spectators and listeners, they do not want to have many deaths"³ has diametrically changed today.

There have appeared views about quite different aspirations of present terrorist groups, especially those whose ideology is based on Islamic fundamentalism. Among them, one should mention, among other things, the willingness to kill the greatest number of people possible, consequently leading to the destabilization of the political situation of the country against which the attack is aimed, as well as gaining the biggest publicity for their actions and causing panic over the largest area.⁴ The media tend to focus on spectacular and negative events, and to get attention, most terrorists traditionally want "showy" attacks that produce a great deal of noise.⁵ The most characteristic differences in perceiving modern and post-modern terrorism are tabulated in Table 1.

The Possibility of Terrorist Groups Using a Nuclear Weapon

Fears for the possibility of nuclear weapons being used by terrorist groups already appeared in the 1950s, when a miniature warhead W-54, called "a suitcase bomb,"⁶ was constructed in the United States. This device, designed for secret service agents conducting acts of sabotage on enemy territory, because of the small dimensions, could become a perfect tool for terrorists to achieve their goals.

³ B. M. Jenkins, *International Terrorism: The Other World War*, R-33022-AF (Santa Monica, CA: RAND, 1985), p. 12.

⁴ M. Żuber, "Terroryzm nuklearny – zagrożenie dla bezpieczeństwa globalnego," in M. J. Malinowski, R. Ożarowski, W. Grabowski, eds., *Ewolucja terroryzmu na przełomie XX i XXI wieku* (Gdańsk: Wydawnictwo Uniwersytetu Gdańskiego, 2009), p. 235.

⁵ W. Laqueur, *The New Terrorism: Fanaticism and the Arms of Mass Destruction* (New York: Oxford University Press, 1999).

⁶ J. Mueller, K. Mueller, "Sanctions of Mass Destruction," *Foreign Affairs*, Vol. 78, No. 3 (May/June 1999), p. 45.

Table 1. Comparison of selected traits of modern and post-modern terrorism

	Modern terrorism	Post-modern terrorism
Motives	Political/ideological, nationalistic/ethnic, separatistic	Religious, fundamentalist
Victims	Mostly selective/ limited	Mass, non-selective, mass-unlimited
Violence	Instrumental, rational, the aim is to change the world. Traditional (explosives)	Expressive, irrational, the aim is not to change but communicate something to the world, symbolic
Means	Traditional (explosives, kidnapping)	The most modern technologies, media, weapons of mass destruction, suicide attacks
Structure/organisation	Clear, centralized, rather hierarchic	Dispersed, less centralized, web model
Financing	Countries-sponsors	Symbiosis with international organized crime
Public opinion support	Important	Unimportant

Source: Ł. Kamiński, *Technologia i wojna przyszłości: Wokół nuklearnej i informacyjnej rewolucji w sprawach wojskowych* (Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego, 2009), p. 196.

However, for the terrorist groups of the 1980s, the possibility of using weapons of mass destruction, especially including nuclear weapons, constituted a particular barrier. It was the effect of both technological difficulties connected with acquiring ready, finished nuclear bombs or fissionable material, which could be used for their construction, as well as moral qualms among terrorists themselves, resulting from the likely tragic results of any nuclear explosion.

One of the first signals concerning the breaking of this symbolic psychological barrier was the beginning of an attempt to acquire weapons of mass destruction, including nuclear weapons, by some terrorist groups.

Among these groups, religious sects have been considered to be the most dangerous, for whom a weapon of mass destruction has been seen as a tool for accomplishing "God's mission." The Japanese sect Aum Shinrikyo

(Supreme Truth), since 1987 led by Shoko Asahara, acquired and used a weapon of mass destruction. After an attack carried out in the Tokyo underground with the usage of sarin, which caused 12 deaths and affected about 5500 people, Japanese police raided the sect's laboratory. They found there a considerable amount of military gases, enough to kill approximately 4.2 million people,⁷ as well as other chemical and biological substances.⁸

Furthermore, a search of the premises of Aum Shinrikyo revealed some traces of documents proving that the sect had attempted to come into possession of nuclear weapons. For this reason, a farm in Western Australia, known as Banjawarn Station, had been bought and a uranium mine was to be opened there to acquire uranium for the purposes of the development of its nuclear program.⁹

Many analysts studying the phenomenon of terrorism claim that the twentyfirst century heralds a so-called era of super-terrorism,¹⁰ the main purpose of which is the escalation of terrorist activities to unimaginable proportions. One can distinguish three main reasons behind terrorist groups' aspirations to acquire and use nuclear weapons.¹¹

The first reason may simply be the willingness to kill the greatest number of people. This can be achieved by using a nuclear weapon, which is able to annihilate thousands or even hundreds of thousands of people at a time.

The second motive, for which those groups strive to escalate violence with the usage of nuclear weapons, is the willingness to use a classic terrorist weapon, which is fear.

The third possible reason for using this kind of weapon is a desire to be able to negotiate from a position of greater strength. The credible threat of using weapons of mass destruction certainly will not be left unanswered by

⁷ R. L. Parry "Sect's Poisons 'Could Kill 4.2 m'," *Independent on Sunday*, March 26, 1995.

⁸ T. Ballard, J. Pate, G. Ackerman, D. McCauley, S. Lawson, *Chronology of Aum Shinrikyo's CBW Activities* (Monterey, CA: James Martin Center for Nonproliferation Studies, 2001, http://cns.miis.edu/reports/aum_chrn.htm (accessed June 30, 2010).

⁹ S. Daly, J. Parachini, W. Rosenau, *Aum Shinrikyo, Al Qaeda, and the Kinshasa Reactor: Implications of Three Case Studies for Combating Nuclear Terrorism*, Paper DB 458 (Santa Monica, CA: RAND, 2005), pp. 5–22. http://www.rand.org/pubs/documented_briefings/2005/RAND_DB458.pdf (accessed July 5, 2010)

¹⁰ Y. Alexander, M. Hoenig, eds., *Super Terrorism: Biological, Chemical, and Nuclear* (Ardley, NY: Transnational Publishers, 2001), p. 7.

¹¹ *Ibid.*, p. 24

the government, and in thus doing, would gain the organization a political tool of great leverage.

In Western countries, there is an extensive debate about how serious and real the threat of weapons of mass destruction is.¹² Analyses of data gathered by different organizations dealing with national security conclude that such an attack is very probable, and that is why intensive efforts should be carried out to prevent such a threat from materializing.

Among the many different kinds of weapons of mass destruction, a nuclear weapon is characterized by great striking power. The initial shock wave and the thermal radiation caused immediate destruction and the deaths of people in close proximity to the epicenter of the explosion. The symptoms of penetrating and radioactive radiation contamination of the ground appear with a certain delay in the form of radiation sickness. In order to construct a nuclear bomb, one needs to have highly enriched uranium or plutonium.

Secret services of many countries report that there is evidence of terrorists planning to use nuclear weapons.¹³ One of the possible motivations for the appearance of nuclear terrorism is the situation in which terrorists come to the conclusion that they no longer have anything to lose. When a group realizes that it is in decline, it may make use of nuclear weapons, mostly to publicize its existence. Ideology destroys moral qualms. If a deed, no matter how horrible, works for "the cause," it is assumed to be good.

There are three possibilities of how terrorists may come into possession of nuclear weapons:

- Cooperation and acquiring nuclear weapons from the government of the country possessing such weapons (e.g., Pakistan, North Korea)
- Theft or illegal purchasing of ready finished items in the countries where there are inadequately protected nuclear arsenals (e.g., former Soviet Union countries)
- Independent construction of a nuclear bomb by scientists recruited by terrorist groups (e.g., Aum Shinrikyo, Al-Kaida)¹⁴

¹² M. Madej, "Możliwość uzyskania przez terrorystów broni jądrowej a zagrożenie terroryzmem nuklearnym," *Polski Przegląd Dyplomatyczny*, Vol. 5, No. 5 (27), 2005, p. 73.

¹³ P. L. Williams, *The Al Qaeda Connection: International Terrorism, Organized Crime and the Coming Apocalypse* (Amherst, NY: Prometheus Books, 2005), p. 116.

¹⁴ Madej, op. cit., p.75.

Acquiring Nuclear Weapons from a Proliferating Country

The worst scenario is one in which terrorists acquire nuclear weapons from one of the so-called “axis of evil” countries, which may support terrorism and have access to nuclear technologies.

The Nuclear Non-Proliferation Treaty (1968) assumed the existence of five so-called “nuclear superpowers” (USA, USSR—now Russia—Great Britain, France, and China) which at the time possessed nuclear weapons or were at an advanced stage in developing them. Unfortunately, the resolutions in this treaty were not respected and some countries from outside the “atomic club” started to realize their own nuclear programs (Israel, India, Pakistan, and North Korea). The nuclear arms race, which was a defining aspect of the Cold War, led to the creation nuclear arsenals, which had the capacity to destroy all life on Earth in case of a global conflict. Data from 2004 indicated the existence of about 30,000 war heads in nuclear arsenals.¹⁵

According to Israel intelligence, today intensive efforts are being made by Iran to develop nuclear technologies, which may be especially dangerous because of its connections and willingness to support Islamic terrorist groups. The willingness to possess nuclear weapons as a counterbalance to the increasing threat is also shown by Japan and Saudi Arabia, which may mean the beginning of a nuclear armament race in Asia and the Middle East and the return of the nuclear scare tactics.

Transferring nuclear bombs to terrorists by one of the above mentioned countries would be the most attractive way of acquiring them; that is, it would be relatively speaking, the easiest way for terrorists to come into the possession of (so called ready to use) a proven (tested) striking weapon.¹⁶ At the same time, they could get help with transporting the explosive abroad and be trained in how to make use of the weapon.

As Madej argues, however, the probability of a nuclear weapon being supplied to a terrorist outfit by one of the proliferating countries is slim for a few reasons.¹⁷ Among them can be mentioned:

¹⁵ SIPRI *Yearbook 2004* (Oxford: Oxford University Press, 2004), pp. 615–17, 629; “NRDC Nuclear Notebook,” *Bulletin of the Atomic Scientists*, <http://www.thebulletin.org/issues/nukenotes/nukenote.html>

¹⁶ M. Bunn, A. Wier, J. P. Holdren, *Controlling Nuclear Weapons and Materials: A Report Card and Action Plan*, Nuclear Threat Initiative and Project on Managing Atom, Harvard University, Washington 2003, pp. 22–24.

¹⁷ Madej, *op. cit.*, pp. 77–78.

- A small number of countries possessing nuclear weapons and the diversification of their arsenals;
- Little profitability from the point of view of the national interests of a possible proliferator, especially as it would be threatened with different sanctions from the international community. It would certainly make it difficult to achieve its goals both in security and economic or social spheres;
- The carrying out of a nuclear terrorist attack by a group supported by a proliferating country would most probably cause retaliatory attacks on the terrorism-sponsoring state;
- Transferring a nuclear explosive to terrorists would mean leaving a dangerous weapon in the hands of unpredictable and difficult-to-control subjects, such as terrorists, which could lead, by way of nuclear blackmail, to them influencing the policy of the "sponsor."¹⁸

The probability of transferring nuclear weapons—even by Pakistan or North Korea—to terrorists by the government of a certain country is rather slim.¹⁹ But there cannot also be excluded the possibility of such a transfer by an influential political fraction sympathizing with a terrorist group, or simply by a group aspiring to gain certain financial profits (an example is the Abdul Qadeer Khan group, the creator of Pakistan's nuclear program, who according to official declarations, without the knowledge of the Pakistan government, sold specialist knowledge and equipment for the production of nuclear weapons at the end of 2003 and the beginning of 2004).²⁰

The Purchase or Theft of Nuclear Weapons

The purchase or theft of ready finished nuclear weapons seems to be the most probable way of gaining access to such weapons by terrorist groups.

¹⁸ K. H. Kamp, "An Overrated Nightmare," *The Bulletin of the Atomic Scientists*, Vol. 52, No. 4 (July–August 1996), pp. 30–34; J. J. Wirtz, "Counter-Terrorism via Counterproliferation," *Terrorism and Political Violence*, Vol. 14, No. 3 (Autumn 2002), pp. 131–33.

¹⁹ N. Gurr, B. Cole, *The New Face of Terrorism: threats from weapons of mass destruction* (New York: I. B. Tauris, 2001), pp. 196–200, 204–5.

²⁰ D. Albright, C. Hinderstein, "Unraveling the A.Q. Khan and Future Proliferation Network," *The Washington Quarterly*, Vol. 28, No. 2 (Spring 2005), pp. 111–28.

According to Madej, however, the protection of sites, also where nuclear warheads are stored, is satisfactory,²¹ and reports of an existing “nuclear black market” have not been confirmed. However, they do not exclude the possibility that a terrorist group sufficiently prepared will perform an attack on a nuclear weapons storage facility or, which is more probable, will gain access to them by means of so-called insiders, in other words, people responsible for the security and protection of nuclear weapons, but who are bribed, blackmailed, or even having sympathies with the terrorist group in question.²²

A different view on this subject is represented by Paul Williams in his book *Al-Kaida: International terrorism, organized crime and an incoming apocalypse*.²³ He gives many examples of both an increasing interest, as well as real transactions, connected with gaining access to nuclear weapons. Below is presented a detailed list of selected incidents connected with the activity of Al-Kaida (Table 2).

According to Graham Allison, in August 2001, “during the final countdown to what Al-Kaida calls the ‘Holy Tuesday’ attack, bin Laden received two key former officials from Pakistan’s nuclear weapons program at his secret headquarters near Kabul. Over the course of three days of intense conversation, he and his second-in-command, the Egyptian surgeon and organizational mastermind Ayman al-Zawahiri, quizzed Sultan Bashiruddin Mahmood and Abdul Majeed about chemical, biological, and, especially, nuclear weapons.”²⁴

²¹ Ch. D. Ferguson, *The Four Faces of Nuclear Terrorism*, Center for Nonproliferation Studies, Monterey Institute of International Studies, Monterey 2004, pp. 58–59.

²² M. Bunn, A. Wier, *Securing the Bomb: An Agenda for Action*, Nuclear Threat Initiative and Project on Managing Atom, Harvard University, Washington 2004, pp. 14–15.

²³ Williams, op. cit., pp. 102–21.

²⁴ G. Allison, *Nuclear Terrorism: The Ultimate Preventable Catastrophe* (New York: Times Books/Henry Holt, 2004), p. 20.

Table 2. Selected nuclear incidents connected with the activity of Al-Kaida

Term of incident	Kind of WMD	Course of incident	Source of information
Unknown	Nuclear	There is an intelligence leak that Bin Laden paid over £2m to a man in Kazakhstan for a "suitcase bomb."	Marie Colvin, "Holy War with US In His Sights," <i>Times</i> , Aug. 16,1998.
Unknown	Nuclear	Bin Laden gives a group of Chechens US\$30m in cash and 2 tonnes of opium for about 20 nuclear warheads.	Riyad' Alam Al-Din, "Report Links bin Laden, Nuclear Weapons," <i>Al-Watan al-Arabi</i> , Nov. 11, 1998; Emil Torabi, "Bin Laden's Nuclear Weapons," <i>Muslim Magazine</i> , Winter 1998,
Unknown	Nuclear	Bin Laden sends some people to a few East European countries to buy enriched uranium.	"Arab Security Sources Sapek of a New Scenario for Afghanistan: Secret Roaming Networks that Exchange Nuclear Weapons for Drugs," <i>Al-Sharq Al-Awsat</i> , Dec. 24, 2000.
Unknown	Nuclear	Bin Laden purchases seven enriched uranium rods from a Ukrainian arms trader, Siemion Mogilewicz.	Uthman Tizgart, "Does Bin Laden Really Possess Weapons of Mass Destruction? Tale of Russian Mafia Boss Simion Mogilevich Who Supplied Bin Laden With the Nuclear 'Dirty Bomb,'" <i>Al-Majallah</i> , London, Nov. 25, 2001

Table 2. (cont'd)

Unknown	Nuclear	Two Pakistani scientists share their information about nuclear weapons with bin Laden and learn about nuclear materials which had been delivered to him by the Islamic Movement of Uzbekistan	Toby Harnden, "Rogue Scientists Gave Bin Laden Nuclear Secrets," <i>Daily Telegraph</i> , Dec. 12, 2001; Peter Baker, "Pakistani Scientists Who Met Bin Laden Failed Polygraphs, Renewing Suspicions," <i>Washington Post</i> , March 3, 2002; Susan B. Glaser, Kamra Khan, "Pakistan Continues Probe of Nuclear Scientists," <i>Washington Post</i> , Nov. 14, 2001
1993-94	Nuclear	Jamal al-Fadl claims that, on behalf of bin Laden, he purchased uranium, needed for the production of nuclear weapons	Kimberly McCloud, Matthew Osborne, "WMD Terrorism and Osama bin Laden," <i>CNS Report</i> , 20.11.2001
1998	Nuclear	Russian intelligence probably prevented bin Laden from purchasing enriched uranium of Russian origin	Earl Lane, Knut Royce, "Nuclear Aspirations?" <i>Newsday</i> , Sept. 19, 2001
Nov. 2004	Nuclear	Sharif al-Masri, a "key" Al-Kaida agent, informs the authorities that bin Laden made an attempt to smuggle nuclear materials nuclear tactical weapons to Mexico	"Al Qaeda Wants to Smuggle N-Material to US," <i>The Nation</i> , Nov. 17, 2004
Sept. 1998	Nuclear	The Al-Kaida agent Mamduh Mahmud Salim was arrested in Munich, when he tried to buy nuclear materials, especially highly enriched uranium	Benjamin Weiser, "US Says Bin Laden Aide Tried to Get Nuclear Weapons," <i>New York Times</i> , Sept.26, 1998

Table 2. (cont'd)

<p>End of 2000</p>	<p>Nuclear</p>	<p>Intelligence agency from an unrevealed country in Europe intercepts the delivery of about 20 nuclear warheads coming from Kazakhstan, Russia, Turkestan and Ukraine. The delivery was meant for bin Laden and the Taliban regime in</p>	<p>“Arab Security Sources Speak of a New Scenario for Afghanistan: Secret Roaming Networks that Exchange Nuclear Weapons for Drugs,” <i>Al-Sharq Al-Awsat</i>, Dec. 24, 2000</p>
<p>Since Summer 2001</p>	<p>Nuclear</p>	<p>Iraqi military instructors train Al-Kaida agents in Northern Iraq how to handle nuclear devices. There were trained between 150 to 250 AL-Kaida agents</p>	<p>“Abu Nidal’s Nemezis”, <i>Akta DEBKA</i>, Jerozolima, 20.08.2002</p>
<p>Before Sept. 9, 2001</p>	<p>Nuclear</p>	<p>Bin Laden buys 48 nuclear suitcase bombs from Russian mafia</p>	<p>“Al-Majallah Obtains Serious Information On Al-Qaeda’s Attempt to Acquire Nuclears Arms,” <i>Al-Majallah</i>, Sept. 8, 2002</p>
<p>Nov. 2001</p>	<p>Nuclear</p>	<p>The evidence collected from Ummah Tameer E-Nau offices in Kabul indicates that nuclear weapons might have been sent to the US from Karachi in a cargo container</p>	<p>Arnaud de Borchgrave, “Al Qaeda’s Nuclear Agenda Verified,” <i>Washington Times</i>, Dec. 10, 2001</p>
<p>Nov. 2001</p>	<p>Nuclear</p>	<p>Bin Laden purchases in central Asia nuclear suitcase bombs made in Russia. Each item weighs ca 8 kg and contains at least 2 kg of fissionable uranium and plutonium. The report says, that the device with series number 9999, which was transported to the U.S., can be detonated with a mobile phone</p>	<p>“N-weapons May be In US Already,” <i>Daily Telegraph</i>, Sydney, Nov. 14, 2001</p>

Table 2. (cont'd)

Nov. 2001	Nuclear	The <i>Times</i> reporter (London) discovers in a house deserted by Al-Kaida in Kabul a project called "Nagasaki Bomb"	"Nuke Plans Fund; Brit Paper Discovers Details Of Weapons in Kabul Safe House," <i>Toronto Sun</i> , Nov. 15, 2001; Hugh Dougherty, "Afghan Nuclear Weapons Papers 'May Be Internet Spoofs,'" <i>Press Association</i> , Nov. 19, 2001
Nov. 2001	Nuclear	In one of the houses in Afghanistan there are found instructions how to handle a "super bomb," the sketch of which, in fact, shows a modern nuclear bomb	"Osama bin Laden's Bid To Acquire Weapons of Mass Destruction represents the Greatest Threat That Western Civilization Has Faced" <i>Mail on Sunday</i> , London, June 23, 2002
Nov. 2001	Nuclear	Mossad arrests, at the border crossing in Ramallah, an Al-Kaida agent with a rucksack, in which there is probably a tactical atomic bomb	United Press International, Dec. 21, 2001. "Pierwsze doniesienia mówiły o bombie radiologicznej"
Jan. 2002	Nuclear	In the deserted camps and factories of Al-Kaida in Afghanistan there are found sketches of nuclear power plants in the U.S.	Bill Hertz, "Nuclear Plants Targeted," <i>Washington Times</i> , Jan. 31, 2002

Source: Kimberly McCloud, Gary A. Ackerman, Jeffrey M. Bale, *Chart: Al-Quaida's WMD Activities*, Center for Nonproliferation Studies, Monterey Institute of International Studies, January 21, 2003. Document checked and modified by Paul L. Williams.

Self-construction of a Nuclear Device

Another method, at least hypothetical, to acquire nuclear weapons is by building a so-called improvised nuclear device (Improvised Nuclear Device, IND). There are two factors which determine the possibility of coming into possession of a nuclear explosive in this way:

- The possibility of acquiring a sufficient amount of fissionable material for constructing a nuclear explosive
- Possessing well-trained personnel, equipment, and a place and time for carrying out the necessary works connected with building an explosive

According to experts' estimates, it is essential to have 6–10 kg of plutonium or 25 kg of highly enriched uranium (HEU) to produce a ca 20 kT explosive. Of course, taking into consideration the amount of uranium compared with world resources, it is not much. Globally, there are about 250 tons of military plutonium and about 1700 tons of military HEU.²⁵

Any actor seeking to develop a nuclear device must deal with a number of design options and must complete a number of essential steps. The aspiring nuclear actor must:

- Develop a design for its nuclear device or obtain such a design from a weapon-holding state
- Produce the fissile material for the core of the device or obtain it from an external source and then machine the fissile material to fabricate the nuclear parts of the weapon
- Fabricate or obtain from outside, the non-nuclear parts of the device, including the high-explosive elements and triggering components that will detonate the nuclear core
- Verify the reliability of these various elements individually and as a system
- Assemble all of these elements into a deliverable nuclear armament, commonly referred to as "weaponization"²⁶

²⁵ "Nuclear Terrorism," *Disarmament Forum*, No. 2 (2003), p. 10.

²⁶ Carnegie Analysis, *Going Nuclear: What it takes to build a bomb*. Based on R. W. Jones, M. G. McDonough, T. Dalton, and G. Koblenz, *Tracking nuclear proliferation: A guide in*

Each of these steps represents particular challenges. Unsuccessful state nuclear weapon programs (e.g., the Iraqi) are often taken as evidence of the infeasibility of establishing nuclear weapon capabilities. This is probably why some scholars uncritically choose to dismiss the risk of nuclear terrorism.²⁷

In 1993–2003, 884 attempts to smuggle or sell nuclear and radioactive materials were reported, of which 205 were illegal attempts to transfer nuclear material, and 18 of them involved the smuggling of material suitable for the production of nuclear weapons. The perpetrators of the majority of such incidents were people not engaged in criminal activities, but mostly a different kind of insiders. It is difficult to estimate how many transactions were uncovered and how many were successful. Protection which is used nowadays as well as the equipment used for detection of radioactive substances in Western countries should allow the improvement of the safety of storing and more effective detecting attempts in the case of smuggling radioactive materials; this will increase safety in this regard.

Some scenarios provide the possibility of having fissionable materials stolen by a very well-trained and organized squad, which could make assaults on the storage sites of used reactor fuels, centers carrying out advanced works on nuclear weapons (like, e.g., Los Alamos), or finally, places that store and utilizing nuclear warheads that have been withdrawn from arsenals.²⁸

As far as producing an explosive itself is concerned, assuming that a terrorist group possesses fissile material, most experts believe that some organizations, especially having sufficient funds at their disposal, are able to accomplish such by using less sophisticated methods of producing atomic weapons.²⁹

The attempt to construct a nuclear explosive would certainly be successful by employing people who have sufficient experience and specialist knowledge in the field of nuclear weapons production. The threat of this kind appeared after the fall of the Soviet Union, when the collapse of

maps and charts (Washington, D.C.: Carnegie Endowment for International Peace, 2001).

²⁷ R. D. Howard, J. J. F. Forest with N. Bajema, *Weapons of Mass Destruction and Terrorism* (Dubuque, IA: McGraw Hill, 2008), p. 113.

²⁸ Ferguson, op. cit., pp. 155–67.

²⁹ Alexander, Hoenig, op. cit., p.7.

the nuclear industry made real the prospect of terrorist groups with suitable financial means “employing” workers in this sector.³⁰ The latter threat still exists, as there can always be found a person who for enough money would be prepared to sell his knowledge. Blackmail cannot be excluded either (possessing embarrassing materials, kidnapping members of the family, etc.) as a way to enlist specialists. One can hope that the relative stability that has appeared among the countries of the former Soviet Union, as well as surveillance conducted by the authorities of those countries, reduce the existing threat. Unfortunately, there are still countries supporting and sympathizing with terrorists (Pakistan, North Korea, Iran), which can share their technology and specialists with them.

Nuclear Explosion—High Intensity Incident

Nuclear explosion striking factors, which were mentioned earlier, serve to cause a crisis situation, requiring the usage of considerable forces both in the period immediately after the explosion and later when restoring the conditions that existed before the explosion. The intensity of the incident will depend on the particular effects of the strike.

There can be distinguished both direct and delayed in time destructing results. Direct effects (shock wave, thermal or ionizing radiation, and electromagnetic impulse) cause serious damage within a few seconds or minutes after a nuclear explosion. Delayed effects (radioactive fallout and other environmental effects) are active for a longer period and cause loss of life even in areas distant from the place of detonation. The shock wave is the main and, it can be certainly said, the most powerful factor of the strike. This stems from the fact that the energy used for creating the striking force constitutes the biggest part of the whole energy of the nuclear explosion (ca 50 percent). It is concentrated in the medium in which it moves. When the wave travels through a solid material, the lost energy causes the damage. When it travels through the air, it gradually loses its momentum. The more matter through which the energy travels, the weaker the effect. The size of the area through which the shock wave travels grows with the growth of the capacity of the sphere, which is in the epicenter of the explosion.

³⁰ S. K. Weiner, “Preventing Nuclear Entrepreneurship on Russia’s Nuclear Cities,” *International Security*, Vol. 27, No. 2 (Fall 2002), pp. 126–58.

The striking force can damage or destroy buildings, equipment, technical devices, logistic resources, infrastructure, and cause the deaths of people who find themselves in the range of its influence (in proximity of the epicenter of the explosion). The bomb dropped on Hiroshima on August 6, 1945, of 15 kT exploded at an altitude of 550 meters. As a result of the explosion, nearly 98 percent of buildings were destroyed, ca 80,000 people were killed, and a further 60,000 died before the end of the year. According to certain data, a rocket containing a warhead of 12.5 kT dropped on a moderately populated urban area (3,000 persons/km²) will cause the death of 20–80,000 people and the destruction of an area of 7–8 km².

Another striking factor of a nuclear explosion is thermal radiation, the source of which is the fireball that comes into existence during the fission reaction of the radioactive material, of which the explosive is constructed. The energy used for the emission of thermal radiation accounts for ca 35 percent of the whole energy created during the explosion. This radiation may cause fires and serious burns to exposed areas of skin. Moreover, the thermal radiation may cause buildings or forests to be set on fire, and the deformation or melting of equipment and devices. Indeed, fires may increase the gross impact of nuclear weapons.

One of the striking factors of delayed action is the penetrating radiation. The neutron explosive explosion is accompanied by the emission of alpha, beta, gamma, and neutron rays. Alpha and beta radiations spread through the air in small distances, not posing a serious threat to people in their range. A serious threat appears the moment of radioactive fallout, containing elements emitting alpha and beta rays; they may get into the organism, via, for example, the respiratory tract or through food.

The stream of gamma rays and of neutrons emitted during a nuclear explosion, called the penetrating radiation, in the direct zone of the nuclear explosion, reaches a radiation dose of 75 cGy/h. It may be the factor causing radiation sickness among those people exposed to it directly during the explosion or from radiation deriving from the radioactive fallout.

The radioactive contamination of terrain is another striking factor. The source of the contamination are the products of the fission of the nuclear explosive, secondary radiation, that is, radioactive isotopes, coming into existence as a result of interaction between neutrons and the medium as well as dispersed remains of not fissioned atomic explosive. Falling out of

the radioactive substances sucked into the fireball at the initial stage of the explosion will cause radioactive contamination of the terrain. The directions and range of spreading and the density of falling out of the radioactive substances will depend on the weather conditions, including the direction and strength of the wind, as well as the possibility of the atmospheric fall. It is expected that in case of rainfall, in a particular area there will be high contamination caused by the “falling out” of cloud with rain.

The contamination of the terrain will create a serious problem for the services dealing with the elimination of the results of the nuclear explosion, as it will force the need for carrying out a decontamination of the region of the explosion and the terrain contaminated by the radioactive cloud moving in the direction of the wind. On account of the range and the size of the contaminated area, this operation will be extremely expensive, but necessary, as the “life span” of the elements which came into existence in the fission reaction is thousands of years. So, staying in the contaminated area, on account of the threat of ionizing radiation, would be impossible.

The last striking factor, not affecting people’s health and life, however, but causing the damage of power and telecommunications infrastructure, is the electromagnetic impulse as the result of the influence of gamma radiation on the surroundings. The size of the impulse depends on the power of the explosion and its altitude. The higher the altitude, the bigger the range of the influence of the impulse, but the intensity gets smaller. The impulse which is partially weakened in the atmosphere will cause smaller damages in comparison with the other striking factors of nuclear weapons.

In the case of terrorists using a nuclear weapon, this factor will not really be of large significance, because of the small range of its influence.

If there is a terrorist attack on a big city, in which there is a detonation of a nuclear explosive, the accumulation of the above mentioned factors will decide the degree of damage and the number of casualties the relevant authorities will have to deal with. In the case of a specific situation such as a “high intensity” threat, a large area will be affected, with the devastation of urban, including vital, infrastructure.

There may be buildings damaged that are vital to care for the victims of any attack, including hospitals, points of medical help, emergency units, and also those centers which would be necessary to run any effective rescue operation—such as power plants, telecommunication centers,

transportation infrastructure (roads, bridges, airports, etc.). One should also bear in mind the fact that crisis management departments, the police, including the municipal police stations and fire and emergency brigades, may also be knocked out by any nuclear strike. In such a situation, it will be necessary to call upon support from outside of the affected area. This in turn will generate new problems: firstly, people being evacuated from the contaminated area will be in a state of panic, with the result there will be widespread chaos. Rescue workers coming in from outside the city will also be operating in an unknown area, additionally increasing the confusion. Salvaged hospitals will be overcrowded, so it will be necessary to transport the injured out of the city. The terrorist attack will cause the authorities to impose a curfew, which will partially restore some order, on condition that armed units (the army, the police, the municipal police) know how to behave in such a difficult situation. Hence, it is extremely important that the command of any such operation be handled in the right way.

Scenarios of a Terrorist Attack with the Usage of a Nuclear Device

Considering the possibility of a nuclear attack being carried out by terrorists, one could be tempted to consider model scenarios of any such attack, the development of the crisis situation, as well as ways in which damage from the nuclear attack could be limited.

One of the scenarios may be a so-called "hidden scenario."

It can be assumed the terrorist group will plant a nuclear explosive in the most crowded place (the city center, a hypermarket, a railway station, etc.) and detonate it at what they deem the most suitable moment.

As a result of any nuclear attack, much will be destroyed, including government administration buildings, hospitals, and maybe also crisis control centers. There will be many fires, which will increase the damage caused by the shock wave. There will also be a lack of communication, lack of electricity, and the threat of gas explosions in many parts of the city.

As a result of the explosion there will be mass casualties around the streets and in the buildings close to the epicenter of the explosion. The wounded that find themselves within the range of different striking factors (people with mechanical injuries, people with burns, and those showing symptoms of radiation sickness) will need help. Additionally, the rescue

operation will be hampered by the damage caused around the epicenter of the explosion, making it difficult to get access to the potentially injured.

Areas which lie in the direction of the prevailing wind will be contaminated by the products of the fission reaction of the nuclear explosive, secondary radiation, and dispersed remains of the nuclear explosive, which will make it necessary to carry out the evacuation and then decontamination of the most contaminated areas.

It will be necessary to use the army, especially chemical troops as well as military medical services, which are best prepared to act in such situations, for they have the professional equipment to identify and minimize the results of the usage of nuclear weapons.

The decontamination of the contaminated area will be a lengthy process, which will be organizationally complicated and requiring huge financial and material outlays.

In case the terrorists make use of a so-called "open scenario," for example making it known in advance that they have planted an explosive and making certain claims (e.g., to free other terrorists kept in prisons, demanding considerable amounts of money) as well as setting a deadline for their fulfillment, the authorities will gain some time to organize and carry out the evacuation of people living in the area in which the detonation of a nuclear explosive is expected. The scale of the success of the operation will depend on the time the authorities will have at their disposal, the effectiveness of the carried out operations, as well as the cooperation of the inhabitants with the services responsible for carrying out the rescue operation.

At the same time, a crises center will be established, which will carry out the negotiations with the terrorists and will organize efforts to minimize the effects of any nuclear explosion. Meanwhile, most probably, a search would be conducted for the planted nuclear explosive. If the negotiations did not bring any positive results and the terrorists decided to detonate the explosive, the number of casualties would be dependent on the effectiveness of the evacuation and the preemptive measures taken to minimize the effects of the nuclear explosion.

In the event of terrorists using a nuclear device, we would most likely expect to be dealing with a "hidden" scenario, as the terrorists will strive to maximize the number of deaths and destabilize the situation in the country by causing widespread panic. The number of deaths will be considerable,

and any operation to further limit the damage will rely on assistance from the outside and the speedy actions of rescue teams.

Concluding Remarks

The proven and strong interest demonstrated by some high-profile terrorist groups in acquiring nuclear weapon capabilities does not allow us to ignore the risk of nuclear terrorism. While the risk can still be deemed to be low, the potential level of physical destruction and the number of casualties would be so great that even the potential for terrorist acquisition and use of nuclear devices warrants serious consideration.

Fortunately, Poland is not very “attractive” to terrorist groups, mainly because of its rather small influence in shaping international politics. However, it cannot be excluded that such an attack could happen, as theoretically such a possibility exists. The probability has increased in connection with Poland’s involvement in Iraq and now in Afghanistan, while fulfilling our commitments towards the Alliance.

This threat will certainly increase with the staging of the football championship Euro 2012. This event will gather football supporters from the whole Europe, and for their protection, there will be a need for carrying out a range of exercises including preparations in case of a terrorist attack.

We should hope that such an incident, which would have catastrophic results, will not happen; however, the services responsible for ensuring security during this event should be prepared to respond to any crisis. Meanwhile, educational campaigns must be conducted among the general public, who must be prepared to follow the correct guidelines should an extreme situation arise.