Chapter 4

CURRENT CAPABILITIES OF FIRST RESPONDERS IN DIFFERENT COUNTRIES

4.1 Austria

4.1.1 Operational logistics

The organizational structure for the response to a catastrophic terror attack in Austria is shown in Fig. 15. The overall responsibility for civil protection and security rests with the Austrian Ministry of Interior (MoI). However, the MoI can exercise its authority only through law enforcement operatives, i.e. for all other topic areas the MoI has to rely on the support of other organizations and institutions.

Figure 15: Organization of contingency planning in Austria

Security is mandated to the MoI, whilst disaster response is considered the responsibility of each of the nine Provinces. It is important to emphasize that in any case, the backbone of such a response (fire fighters, paramedics) as well as specialized services (e.g., mountain rescue services) are based on voluntary services. These relief organizations have a nation-wide infrastructure, using a variety of specialized bases. For example, fire fighters have a dedicated Hazmat base in each political district. At distinct locations, such as important road tunnels, specially tailored units are strategically positioned. This stationary infrastructure is reinforced by specialized mobile units.
As an example, the following information illustrates the extensive volunteer-based infrastructure available as of January 2000:

- **Fire fighters**: there were a total of 4,874 fire brigades with altogether 312,897 fire fighters, of which 281,912 fire fighters and 18,600 cadets (age: 10 to 16 years) were unpaid volunteers;
- **Paramedics**: approximately 45,000 volunteers and 5,000 employees were stationed at 956 municipal bases, respectively 142 district bases. They were supported by additional mobile units, such as nuclear-biological-chemical rescue teams.

These resources are concentrated in large urban areas (event- and shopping malls, high profile society events\(^{19}\) and targets of high strategic value (Alpine tunnels, rail/road bridges), which could be subject to a catastrophic terror attack.

### 4.1.2 National constraints

Major constraints result from the limited financial means available. This prevents the nation-wide distribution of specialized equipment, lack of adequate equipment for the detection of WMD-related contamination, insufficient means of transport and communication, as well as unavailability of permanent (L 4) isolation facilities.

At present, each organization of the Austrian First Responder community carries out its own, independent training programme. However, there is increased emphasis on cooperation with regard to the training of specialized units. An unresolved issue is the fact that the current recruitment system of full time professionals and volunteers makes it practically impossible to train all responders to the same required level of technical and practical expertise; for example, experience from the Red Cross illustrates that manning one expert First Responder position requires typically ten persons from a volunteer organization.

Special attention is paid to ensuring the operational capability of hospitals, since it is difficult to replace them. They are particularly vulnerable to secondary contamination by victims delivered from an act of terror involving radioactive, biological or chemical materials. Also there is a

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\(^{19}\) For example, the *Danube-Island Festival* (Vienna) is the biggest open-air event in Europe, attracting 2.5 Mio spectators over a period of 3 days.
lack of adequate treatment capacity: at present even in the capital Vienna there are only three hospitals, which are equipped to treat such contaminated patients.

In order to ensure logistical support for the Austrian First Responder community in case its own infrastructure has been significantly damaged, the Austrian authorities have established alternative lines of logistical support, such as:

- Since the transport infrastructure itself represents a potential target of terrorism, the Austrian authorities have ensured that the First Responder community has access to alternative transport choices, e.g., special equipment may be flown to the scene using aircraft from the Austrian Armed Forces or the MoI;
- Scientists and laboratory technicians, working in various national and industrial research establishments and capable of providing logistical support, were identified and a centralized database was established, e.g., for supporting the First Responder community with added laboratory and analytical capabilities in case of an anthrax attack; Communication among members of the First Responder community can be strengthened by using prioritised cellular phones, provided upon demand by the Austrian Telecom company, or the deployment of mobile bases.20

4.2 Israel

4.2.1 Security threats

Israel has been targeted by primitive attempts of Palestinian terrorists to use chemical and biological agents since 1965 (MERARI, 2000). There is one incident that is repeatedly associated with them and is frequently mentioned in the literature: the 1978 poisoning of Israeli oranges in Europe by injection with liquid mercury (KARMON and SPRINZAK). These were followed by the 1979 effort by a local group of the Popular Front for the Liberation of Palestine in Gaza to contaminate Israeli oranges in Tel Aviv and the 1988 effort by pro-Palestinian groups in Italy to instill fear of grapefruit poisoning. However, the real aim of the

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20 An earlier attempt to establish a common communication system for all FR members had failed.
operation was ‘not to indiscriminately kill …[the] population, but to sabotage the Israeli economy,’ which suffered in this case some 40 million dollars damage. (KARMON and SPRINZAK) The perpetrators of this campaign were clearly aware of the psychological and political impact of the new chemical *modus operandi* on civilian population and sought to elicit fears of unconventional weapons.

In the second half of the 1980s more plans and attempts by secular Palestinian terrorist activists to stage such kind of attacks were reported or were foiled by the Israeli security services. This included discussion about poisoning the food of then cabinet minister Ariel Sharon by a Palestinian member of the PFLP-GC (Ahmad Jibril’s organization) working in a Tel Aviv restaurant (September 1985); a plan by PFLP-Abu al-Abbas faction activists to pour several glasses of Polidol (a chemical fertilizer usually sprayed in vineyards) into containers of drinking water placed on the roofs of Israeli houses or try and inject it into bread loaves at Israeli supermarkets (June 1986). In October 1986 a member of Fatah’s Force 17 is reported to have expressed an interest in poisoning ponds of fish nurseries near Haifa; several intelligence reports refer to a possible use of cyanide against the drinking water of Jewish settlements in the West Bank and a plan by Fatah – Revolutionary Command (the Abu Nidal) organization, which allegedly had successfully developed a liquid poison that cannot be detected in routine tests (July - August 1987) (KARMON and SPRINZAK).

According to a Channel Two Television report, Israeli and PLO Authority (PA) security forces foiled a planned Hamas terror attack involving a chemical attack in May 1999, on the eve of the Israeli national elections. A senior Hamas terrorist leader reportedly received instructions in the preparation of the chemical weaponry from supervisors aboard (MCGORY, 2002).

The Palestinian interest in non-conventional weaponry soared after the September 11, 2001 terror attacks in the United States and the wave of anthrax letters, probably because terrorist groups saw these bombings as having ‘broken a taboo’ against mass-casualty terror attacks (MEMRI SPECIAL DISPATCH, 2001). Moreover, they were encouraged by the new campaign of violence opened by the Palestinian Authority in October 2000, the so-called ‘al-Aqsa intifada.’ The radical Islamist Hamas organization took the lead in the use of chemical agents in attacks against Israeli targets.
Israel's Health Ministry revealed that nails and bolts packed into explosives detonated by a Hamas suicide bomber on December 1, 2001 in a Jerusalem pedestrian mall had been dipped into rat poison. The Health Ministry revealed that the blasts have destroyed the poisons' potency and therefore no bomb victims had been harmed by the chemicals. The military wing of the Islamic militant group Hamas claimed that it had dealt a blow to Israeli morale by planting poisonous chemicals on the bombs its activists have detonated of late. On its Web site, Izzedine al-Qassam claimed its militants had a new weapon that had created a situation of fear in the Zionist security services. The Hamas military wing cited Israeli media reports of public consternation at the prospect of Palestinian chemical warfare. It did not say what chemicals it might have (WEIZMAN, 2001). Israeli police spokesman reported that since 1994, traces of various toxic chemicals have been found in at least five Palestinian bomb attacks, like traces of pesticides. But he said it was unclear if they had been deliberately introduced to enhance the bombs’ deadliness, or if the explosives used were transported in containers that had previously contained other substances. Police and others who work at bomb scenes have been issued protective overalls, but that the chemical threat was really a minor one. (WEIZMAN, 2001) It seems that in all some 13 such attacks have been reported.

Members of Hamas' military wing have been gathering information during 2002 with the goal of carrying out attacks using biological and chemical weapons. In one case, the orders for this effort came from a close associate of Salah Shehadeh, the Hamas 'military' leader. During the last months of 2002 more and more arrested Palestinians, mainly from Hamas, have admitted that their organization was interested in the idea of using non-conventional weapons and had begun to prepare for this possibility. Several reports mentioned the possibility that the organizations intended to use cyanide (TURNBULL and ABHAYARATNE, 2002). By the end of 2002, Hamas posted on its website a 'Poisons Handbook' (dated February 7, 1996). The eight-chapter ‘Mujahideen Poisons Handbook’ gave detailed instructions and diagrams in English for mass-producing what are described as deadly chemical gases and liquids. One recipe was for a poison purportedly based on nicotine and derived from tobacco boiled down in industrial alcohol. The identity of the manual's author, signed as Abdel-Aziz, could not be verified but it was strangely similar to manuals of the kind published by radical right-wing websites. Hamas official Ismail Haniyah claimed the group bore no responsibility for what contributors said on its site. The handbook was later removed from the website (WILLIAMS, 2003).
Several plans to use biological agents have come to light, including a Hamas plan to poison the food with dangerous medicines in a Jerusalem restaurant; an Islamic Jihad plan to poison the water supply of a Jerusalem hospital; and a plan by Nabil Okhel, an al-Qaeda operative, to poison the entire country's water supply (HAREL, 2003). Lately an attempt to send a suicide bomber with an AIDS disease meant to contaminate the injured persons was foiled by the Israeli Security Service.

It should be noted that Palestinian organizations tried to bomb the main Israeli gas storage area near Tel-Aviv, tried twice to use truck-bombs against the highest (Azriyeli) building in Tel-Aviv, and in a March 2004 suicide attack by a combined Hamas and Fatah team in the harbour of Asdod could have targeted a truck carrying the highly poisonous chemical bromine. Fortunately, these potentially extremely lethal attacks were foiled or succeeded only partially.

### 4.2.2 Integrated countermeasures

The best source for understanding Israel’s management of the chemical, biological and radiological terrorism is Ariel Merari’s comprehensive article, *Israel’s Preparedness for High Consequence Terrorism*. Merari presents the picture correct to October 2000, just before the unleashing of the big wave of Palestinian violence and terrorism known under the name of ‘al-Aqsa intifada,’ and it is heavily cited in the next paragraphs.

Merari stresses that to manage a terrorist WMD attack Israel relied on its existing wartime civil defense system. It has not developed a separate system for managing WMD events caused by terrorists, as opposed to other states, because it evaluated that the worst terrorist attack would presumably still be less severe than a barrage of Iraqi or Syrian missiles carrying chemical or biological warheads.

A 1974 government decision charged the police with responsibility for handling terrorist incidents within Israel’s borders. It also made the Israeli Defense Forces (IDF) responsible for managing incidents up to five kilometers from the borders, in the Negev Desert, which encompasses the southern half of the country (with the exception of cities and towns there), and in the Territories. The minister of defense, however, may declare a ‘limited state of emergency,’ thereby transferring comprehensive responsibility for managing an incident to the military. The declaration of a state of emergency allows military authorities to take actions to ensure public security and the uninterrupted supply of vital services. It allows the
military to force people to stay in bomb shelters, to obtain means of defense as determined by the military, and to shut down schools and other public services and workplaces. By law, the declaration must be made public through radio, television, and newspapers as soon as possible.

In *conventional terrorist incidents*, according to Merari, the police are capable, in principle, of assuming comprehensive responsibility. This is not the case, however, in unconventional incidents such as WMD events. Until October 2000 the police were unable and unequipped to manage an unconventional incident. For instance, they were neither trained, nor equipped to detect and identify chemical substances. Therefore, the army's Home Front Command (HFC), formed in 1992 as a consequence of the lessons learned during the first Gulf War, was the only organization that could manage an unconventional incident and would be in charge in a case of this kind. However, as a result of the 9/11 attacks, the anthrax campaign in the US and the violent intifada which saw the first serious attempts to use chemical agents in suicide explosive attacks, the Israeli government decided by the end of 2001 that:

- Police will be responsible for the managing of chemical terrorist attacks,
- A joint team of the Ministry of Defense will manage terrorist biological attacks, and
- IDF specialized units will be responsible to deal with radiological attacks and more specifically with the decontamination work after such an attack.

The evaluation of the Israeli authorities at this stage is that a *radiological attack* has a very low probability in Israel, although a potential threat of an attack against an existing radiological department in a big hospital is considered within the realm of possibility.

The Israeli Police is responsible and is coordinating all the activities related to a *chemical attack*, either one resulting from a combined explosive-chemical attack or a covert chemical one. The local or regional police units are the first ones to arrive at the scene of a terrorist event, but they are not equipped with the necessary devices for detection of chemical agents. This task is performed by the Special Police Unit, YAMAM, Israel's elite civilian hostage rescue and CT unit. The unit belongs to the Israeli Border Guard (MAGAV). This small but highly professional and experienced unit has received from the HFC the necessary protection kits and detection equipment and has a chemist in its ranks. In all cases of
explosive attacks, even if they involve chemical agents, the direct responsibility for dealing with the event is done by the Bomb Disposal units, be it in Israel or in the Territories. In case of a covert chemical event the detection of the agents and their identification is done by special teams belonging to the Ministry of Environment Protection.

In the area of emergency medicine, Magen David Adom (MADA), the organisation entrusted to carry out in Israel the functions assigned by the Geneva Convention national societies of the Red Cross, sends its ambulances with volunteer paramedics to every terrorist incident or attack and is responsible to give the first treatment on the spot and send the injured people to the hospitals. In the event of an attack, the hospital next on the rotation list receives notification. It is also notified if a chemical agent is suspected, even before detection and identification have been performed. The hospital then sets in motion its emergency procedures. The police ensures that evacuation routes to the hospitals have been cleared. Upon reaching the hospital’s entrance, the casualties are assessed by the medical staff. Chemical attack victims requiring hospitalization are taken to the vicinity of the emergency room where showers have been set up for decontamination. Treatment by type of substance is given according to binding orders of HFC. Long-range treatment and follow-up is provided by the civilian community medical services (sick funds) (MERARI, 2000).

Biological attacks are distinct in several crucial respects and require different, generally simpler organization and procedures. A terrorist WMD attack would occur without warning, leaving people no time to protect themselves. The time frame for detecting a biological incident, identifying its parameters, and managing it is considerably longer. An unannounced terrorist biological attack, on the other hand, could cause many casualties before the source is identified and the exposed population gets proper treatment. During the months following the anthrax letter incidents in the US, the police and its bomb disposal units were responsible for the control and identification of suspect letters or packages. However, in case of a major threat of biological terrorist attacks the responsibility passes to a special team of the Ministry of Defense, which has the knowledge and the means to identify and manage such a national event. Like other components of the preparedness system, the medical complex relies on procedures designed to deal with the greater threat of unconventional attacks by regular armies and does not maintain special readiness for WMD terrorist attacks.
A terrorist WMD attack would occur without warning, leaving people no time to protect themselves. The number of casualties per unit quantity of chemical or biological substance (i.e., the effectiveness ratio), according to Merari’s evaluation, would therefore be considerably higher than in the case of a state-sponsored WMD attack. This difference is even more pronounced with regard to unannounced biological terrorist attacks. In wartime an enemy missile carrying biological warfare material would likely be immediately identified as such, leaving enough time for preventive treatment. An unannounced terrorist biological attack, on the other hand, could cause many casualties before the source is identified and the exposed population gets proper treatment.

For Israel’s medical system, preparedness for a biological attack means awareness of symptoms and readiness for treatment. The ministry of public health monitors the incidence of contagious diseases throughout the country, particularly those diseases that could be used in biological warfare. By law, hospitals must immediately report the occurrence of such diseases. In the event of a biological incident, HFC can call upon teams of soldiers to canvass the affected area. Going door to door, the teams give residents the appropriate medicines and printed follow-up instructions.

The doctrine and the management by First Responders of chemical and biological terrorist attacks in Israel is a complex task, influenced in great measure by the major threat of the potential war-time deployment of WMD against Israel. This doctrine has been adapted to fit the new realities of the post 9/11 situation and the real attempts of terrorist organizations, however inefficient at this stage, to wage chemical and biological attacks. However, the HFC remains one of the pillars of Israel’s readiness in the fight against this threat and will certainly lead any response to a major or what is today called mega attack. The goals of the HFC are defined as follows: to define the civilian defense concept; to steer, direct and prepare the civilian population for a state of emergency; to direct and guide all civilian systems, auxiliary organizations, the Israeli police and the military systems (NURIEL, 2002). The HFC acts according to the Civil Defense Law and serves as the primary professional authority in the IDF for civil defense. At the same time it serves as a territorial command in its area. The responsibilities of the HFC include: to command and coordinate all forces involved in the incident, in order to optimize the national response; to develop a combined doctrine for all the forces involved in the incident; to carry out combined training at all levels of command; to inform and instruct the civilian population in personal and
collective protection issues; to plan and deploy warning systems; to be in continuous readiness to help police forces during terrorist incidents.

In order to accomplish these complex missions the HFC has at its disposal: rescue battalions, security battalions, chem-bio battalions, observation units, and medical units. It also has fire brigade units (combined military and civilian), warning and alarm systems, and departments for information, instruction and civilian care.

In order to cope with the multiple threats Israel faces today, it has devised a strategy for several basic situations involving chemical, biological and radiological terrorist threats:

- The police is responsible for the management of the event in peacetime
- The HFC is responsible for the management of the event in wartime
- The police deal initially with chemical attacks, and in case of a major attack, the HFC takes over command by request of the police.

4.3 Russia

4.3.1 Counter-terrorism logistics

The recent years showed an increase in global terrorist activities. The threat of using the most dangerous weapons – weapons of mass destruction (WMD) or a radiological dispersal device, the so-called “dirty bomb” – by terrorist organizations has grown. Thus, according to the data published in the book “New Terrorism: Anatomy, Trends and Counter-Strategies,” 292 terrorist acts using or threatening to use nuclear, biological and chemical weapons were recorded in the period 1970 to 1998 worldwide. (TAN and RAMAKRISHNA, 2002) More than a half of these incidents were recorded in the USA. The use of such weapons in terrorist attacks is extremely dangerous due to both the great destruction capability and the enormous cost related to consequence management. It should be noted that the above-mentioned source lists the following WMD terrorist acts as successful: sarin gas attacks by Aum Sinrikyo in Matsumoto in 1994 (3 dead) and in the Tokyo Metro in 1995 (12 dead, about 5000 injured). The first terrorist organization to deploy chemical weapons was the Tamil Tigers, who used gaseous chloride in their attack on Sri Lanka military in 1990. With regard to serious radiological
incidents, researchers refer to the discovery of a container with cesium-137 in Moscow’s Izmailovsky Park, which had been placed there by Chechen terrorists. Neither public health, nor the environment was affected. (TAN AND RAMAKRISHNA, 2002) The world community and, first of all, the G-7 countries addressed the problem of countering terrorism by signing the Declaration on Terrorism in Lyon in 1996, which proclaimed fight against terrorism the absolute priority. (SUMMIT, 1996)

Most researchers working on terrorism issues believe that a high level of preparedness of the general public to terrorist attacks may significantly decrease both the number of casualties and the economic loss due to their consequences. Of paramount importance also is the preparedness of the First Responders, who are the first ones to arrive at the scene of an attack. In Russia, First Responders include units of the Ministry of Emergency Situations – rescue personnel, fire fighters, and civil defence forces, – as well as paramedics and police. (REGULATION ON THE MINISTRY OF THE RUSSIAN FEDERATION ON CIVIL DEFENSE, 2002)

The level of preparedness of First Responders is determined by their ability to perform – before the arrival of specialized forces – a wide range of different tasks, ranging from identifying the type of and localizing the WMD used, to rescuing the survivors. To make this possible, the preparedness of First Responders should cover individual protective means against any hazardous substances, as well as the equipment and software that would allow them to perform their tasks in the most effective manner. Without doubt, First Responders should be well trained to use these means professionally in conditions of emergency situations. The current approach to First Responders in the United States is described in detail in the book “Emergency Responders’ Needs, Goals, and Priorities”. (POLLARD et al, 2003). The authors carefully researched all aspects of First Responders’ activities regarding the countering and management of the consequences of chemical, biological, radiological and nuclear explosive (CBRNE) terrorism, starting from listing the tasks of First Responders to the logistical requirements necessary for the efficient implementation of these tasks. It should be acknowledged that solutions to the above problems are no longer just national issues, but have acquired an international dimension. This is due to the extreme importance of prevention and mitigation of catastrophic terrorist acts for the whole world community, as well as the high costs and technical complexity of these efforts. Therefore, there is no principal difference in approaches of different countries aiming to provide the highest degree of preparedness of
First Responders to perform their tasks – only financial and technological capabilities differ from country to country.

The major logistical requirements for First Responders in Russia are as follows:

- Individual protective means (of both, the whole body and respiratory organs) against the maximum possible number of hazardous substances;
- Hazmat identification and contamination assessment equipment;
- Means of communication with coordinating authorities and other First Responders;
- Means of delineating the affected area (police, military units of civil defence and emergency situations, and, if necessary, other military units) (REGULATION ON THE MINISTRY OF THE RUSSIAN FEDERATION ON CIVIL DEFENSE, 2002);
- Rapid response capabilities (most of all, transport);
- Means of effective real-time mitigation of the consequences of a terrorist attack (fire fighters, paramedics, specialists trained in the area of consequence management after a WMD attack and equipped with all the necessary devices and disposable materials).

In case of a nuclear or radiological catastrophe in Russia, it will be the specialists of the Department of Safety and Emergency Situations of the Federal Atomic Energy Agency (FAEA) of the Russian Federation. In addition, specialists of the FAEA Situational Crisis Center may be involved, whose tasks include the following:

- Environmental monitoring at FAEA sites and facilities;
- Monitoring of technical conditions at FAEA facilities;
- Control and accounting of nuclear material;
- Monitoring of the transport of nuclear and other radioactive material; etc. (RUSSIAN MINISTRY OF ATOMIC ENERGY, 2003).

Naturally, the level – both, qualitative and quantitative – of means necessary for the efficient work of the First Responders is determined by the economic and technological capabilities of each country, as well as professionalism of the employed personnel. In order to reach a sufficient
level of competence (not only in Russia), significant research and design efforts are needed with the financial support from both, industry and state. It should also be noted that it is most cost-efficient to concentrate on providing physical protection, control and accounting of materials suitable for WMD terrorist attacks.

4.3.2 Countering radiological and nuclear terrorism

The current approach to countering the problem of nuclear and radiological terrorism in Russia has been well described (ROSSIYSKAYA GAZETA, 2004). One of the main reasons for creating this document was “increased threats by radical terrorist organizations, including international, with regard to nuclear and radiological potentially hazardous sites and materials.” This document states that in order to provide nuclear and radiological security, funding should concentrate on the following tasks:

- Improving State administration and coordination in the area of nuclear and radiological security, first of all, the State radiological security system of the Russian Federation, using examples from the international practice;
- Strengthening the protection of nuclear and radiological facilities against harmful influence by man-caused and natural factors, as well as terrorist acts;
- Upgrading physical protection systems and equipment at nuclear facilities and increasing their resistance to acts of sabotage and terrorism;
- Improving medical supplies and treatment facilities for nuclear and radiological site personnel and the general public;
- Increasing the efficiency of international cooperation in the area of nuclear and radiological security.

The document lists the following major tasks:

- To maintain the necessary level of preparedness of First Responders and their means for the mitigation of emergency situations, as well as terrorist attacks on especially dangerous nuclear and radiological facilities;
- To increase the efficiency of activities in the following areas:
  - Reduction of risk and mitigation of consequences resulting from natural and man-caused catastrophes at nuclear and radiological facilities, and prevention and elimination of radiological emergencies;
Maintaining the necessary level of preparedness of medical units at FAEA nuclear facilities and implementing a complex of social, medical-prophylactic and sanitary-hygienic measures in case of emergency situations, including those involving terrorist attacks against nuclear and radiological facilities.

From the standpoint of consequences to the general public and economic losses, nuclear weapons and ‘dirty bombs’ are some of the most dangerous types of WMD. Building nuclear weapons by terrorist organizations would be problematic. From the first nuclear test in 1949 to the disintegration of the Soviet Union, multiple factors guaranteed reliable protection of the Soviet nuclear material against unauthorized access. (ORLOV, 1997) These factors included the existence of the “iron curtain” at country’s borders, political stability, absolute control over the personnel of the strategic nuclear sites, timely and significant financing of the “homeland’s nuclear shield,” which made working in the nuclear arena prestigious. At the same time, little attention was paid to the protection of nuclear material, radioactive waste, chemical weapons, and nuclear warheads and technologies against the “local enemy,” such as political terrorist groups, ethnical radical nationalists or organized crime groups. The reason was quite simple: up until 1990, criminal groups were not well-organized, whilst political opponents to the existing regime had used peaceful ways of resistance. A significantly larger number of efforts were directed to prevent potential sabotage by the imperialistic West. With regard to small-sized tactical nuclear weapons (rucksack type), Colonel-General Victor Yesin, former Chief of Staff of RVSN and now the first Vice-President of Russia’s Public Academy of Safety, Defence and Law and Order, stated that such devices were part of the US Army and Navy since 1964. (YESIN, 2004) They were called Special Atomic Demolition Munitions (SADM) and were produced in two versions – M-129 and M-159 – with a W-54 nuclear charge, ranging from 0.01 to 1 kiloton. Their size was 87 x 65 x 67 cm and the total weight of the rucksack and container amounted to about 70 kg. A total of around 300 units were deployed. According to reports in foreign mass media, all devices were utilized in late 1992 – early 1993. The Soviet Union started production of similar munitions later, in 1967. They were known as “special mines” and were produced in lower numbers than in the USA. According to the former Russia’s Minister of Foreign Affairs Igor Ivanov, these munitions were eliminated in accordance with a bilateral agreement between Moscow and Washington, DC, before the end of 2000. According to the data published by the Stockholm International Peace Research Institute,
besides Russia and the United States, China and Israel possess the technological capabilities to produce small-sized nuclear devices. (YESIN, 2004). A comprehensive inspection conducted by a group of experts of the Security Council of the Russian Federation in 1998 revealed no incidents of loss or theft of special mines in the former USSR and, consequently, the Russian Federation.

In early 1990s, the situation in the country rapidly changed. Russia and the United States concluded a number of bilateral agreements on cooperation in improving physical protection, control and accounting of nuclear material at Russia’s nuclear installations with the US financial support. It should be noted that these efforts were initiated by the United States. In 1991, Senators Sam Nunn and Richard Lugar secured support in the US Congress regarding the allocation of US$ 400 million from the budget of US Department of Defence annually to assist the Soviet Union in providing secure transportation, storage and elimination of its WMD stockpiles. During the Clinton Administration, this program, initially called Nunn-Lugar Program, was transformed into the Cooperative Threat Reduction (CTR) Program financed by three sources – Department of Defence, Department of Energy, and State Department. This has been the largest US assistance program to Russia. It has involved over 60 Russian facilities, and more than US$ 3 billion has been spent during its implementation (NUCLEAR REPORT, 2002). One of the major parts of this effort has been the Material Protection, Control and Accounting (MPC&A) Program conducted at Russia’s nuclear facilities, which currently ranks first among other preventive measures to secure nuclear material. Since 1996, this Program has been supported directly from the budget of the US Department of Energy. In Russia, physical security of nuclear material is provided by various divisions of the Ministry of Interior (MVD) and, of course, the management of nuclear facilities. Over the past 10 years, the level of preparedness and equipment of the MVD divisions responsible for the protection of nuclear installations and security of nuclear material have been significantly improved and continues to grow due to the financial and logistical assistance by the United States within the MPC&A Program.

It should be noted, that as far as the consequences are concerned, the threat of man-caused accidents at nuclear installations may be equal, or even significantly higher, than that of terrorist acts. In Russia the above has been demonstrated by the Kyshtym (29 September 1957) and Chernobyl (26 April 1986) accidents. These accidents have been described in detail in the literature. One literature source referring to both
In Russia the probability of the use of so-called “dirty bomb” in a terrorist attack is viewed to be significantly higher than that of nuclear weapons. Practically any information on radiological dispersal devices is accessible to anyone interested. Just by using the Yahoo search engine on the Internet one gains access to almost 2,500,000 references ranging from methods of building such a device to the assessment of consequences of such an attack in large cities (e.g., in London). The Internet also contains BBC reports referring to unidentified sources in the British Government that members of Al Qaeda, supported by Taleban, have already produced a dirty bomb on the territory of Afghanistan. The consequences of the explosion of such a bomb in a large city may be estimated in view of the devastating 1995 blast in Oklahoma-city as an example, when 168 people were killed, but which did not involve any radioactive material. Therefore, to prevent terrorist attacks using radiological dispersal devices an emphasis should be made on eliminating the possibility of unauthorized access to radioactive material at the facilities where such material are being used. Although the current MPC&A program implemented in Russia is contributing to the security of nuclear radioactive material, more emphasis should be placed on the protection of any radioactive material (including spent fuel and radioactive waste) not only in storage, but also during their handling as well (including transport). The importance of implementing this task is hard to overestimate. Thus, in April 2004, a Russian web-site published an article referring to the head of the International Atomic Energy Agency, Mohamed El Baradei, which stated that there have been several incidents in Iraq when “large caches of radioactive material, and sometimes the whole facilities where it was stored, went missing” (URL). According to an article published by the same website in January 2004, the “uranium oxide cargo discovered in the port of Rotterdam had likely originated in Iraq.” Solving the problem of preventing a “dirty bomb,” as well as material suitable for this purpose, from entering the territory of a country (not only Russia) will also require
4.4 Slovenia

4.4.1 Past events

Events, such as the discovery of chemical weapons, a threat involving a TBC agent, and scares involving anthrax triggered Slovenia to consider actions in the case of a threat involving weapons of mass destruction. Subsequently some irregularities were discovered and mistakes in the system were revealed, which had not been addressed before. In the following some typical examples of events involving such materials and the reaction of the Slovenian First Responder community are described.

Chemical weapon: On 24 November 2000 the Bomb Squad in Ljubljana (Republic of Slovenia) was notified about the seizure of a yellow square box with black letters (in Cyrillic and Latin) »IPERIT« written on it. In the Slovenian language, IPERIT stands for a mustard gas blister agent. During the discussion it was discovered that the box had been seized during a house search and brought to the police station. One 16-year old boy had found the box at an old military dump yard and brought it home. The group on duty was immediately dispatched to the scene, ordering the police officers to move away from the seized object. At the police station they identified a yellow box made from aluminium, measuring (W70 X L70 X H70 cm) with black letters on it (Figs. 16, 17).

Figure 16: Mustard gas container
Figure 17: Dimensions of mustard gas container

The bomb technicians at the scene decided to conduct an X-ray examination of the interior of the box. The square box was put against the wall at a small inclination to see if there is any liquid inside it (Figs. 18).

It was confirmed, that there was a bottle inside the box, which contained an unknown liquid. No booby trap devices were found inside the box. The expert group from the Ministry of Defence was called to the scene, and they took care of the blister agent.

Figure 18: X-ray photo of mustard gas container (tilted)
Figure 19: Flask with TBC agent

Figure 20: Transport container of TBC agent

*TBC agent:* On 2 February 2003 at 16.14, the Mozirje Police Station received a call from a driver who had found a suspicious object on the front passenger seat of his lorry (Figures 19, 20). A police patrol unit was sent to the scene to perform an inspection of the suspicious subject. The police officers established that the object was oval-shaped, 40 mm in diameter, 123 mm long and closed by coil. The object carried the writing TBC Golnik. It was closed in a plastic bag, tightened with a rubber band. Golnik is a place in Slovenia with a well-known hospital for pulmonary diseases where tuberculosis patients are treated. The police officers took the object to Mozirje Health Care Centre and showed it to a medical doctor who insisted that the object did not come from their institution. He,
however, confirmed the possibility of the container being genuine. The police officers then took the container to Možirje Police Station. The on-duty officer realized that the procedure taken so far had been wrong and notified the criminal investigations inspection group, the local health inspectorate and the bomb squad. The health inspector who arrived at the scene confirmed that the object was a typical container used to carry the infectious samples sent to Golnik Hospital for further examination. The bomb technicians performed an X-ray scan in order to exclude the possibility of a dangerous mechanism being placed in the object.

Further investigations revealed that this incident had been the result of a marital dispute.

**Anthrax threats:** After the publication of the reports of an anthrax attack in the USA, parcels with a suspicious white powder appeared in Ljubljana the following day. The numerous simultaneous reports (10 calls within a very short period) overloaded the system so much that it came to a standstill. Several urgent measures needed to be taken in order to organize the response service. The analyses conducted later on showed that some of the decisions that were taken had not been optimal.

### 4.4.2 National response

In view of the newly emerged geopolitical situation and given the experiences from previous interventions, the Slovenian National Security Council met, at the initiative of the Slovene Police and formed a working group charged with preparing the response of state bodies in case of a national security threat. The main task of the working group was to identify all the means available for use in case of a threat with weapons of mass destruction. It was established that some appropriate equipment and knowledge existed which was, however, dispersed over various organizations (state bodies, public institutions and private companies). Furthermore, it was not immediately available, since most of the services do not have an organized permanent team ready at all times. Such teams are neither capable of responding immediately in the field, nor do they have training for direct intervention in the field.

In the future this working group has the remaining task to ensure optimization and joint intervention in the event of a threat, with weapons of mass destruction topping the list of priorities. As such, many organizations have offered to cooperate, albeit some of the managers have mistakenly understood their willingness to cooperate as the final solution
to the response system. Problems have arisen because everybody wants to offer advice and make long-term plans. While this may be desirable, it does not help the First Responders who come in contact with a suspicious object in the field, suspected of containing weapons of mass destruction. In a concrete case, whereby weapons of mass destruction are found, the situation must be dealt with quickly, and the same time avoiding harmful emissions and enabling conventional forensic work. Furthermore, life in the surroundings of the place of WMD discovery must be returned to the normal conditions as soon as possible.

The First Responders must, as such, have precise advance knowledge of the operation procedures. This led the Slovenian authorities to adopt the approach applied in Spain and London (the Metropolitan Police), whereby the bomb technicians perform the first procedures (separation of the spray mechanism, enclosing the weapon of mass destruction in a hermetic container, the initial detection and identification, etc.). It was, of course, and there will continue to be a need to adapt the standard procedures applied by the bomb squad for destroying suspicious objects. Some of these may be quite spectacular but, for understandable reasons, entirely inappropriate in procedures which involve weapons of mass destruction (for example, the destruction of a suspicious object by explosives).

Additional training has been organized in the field of weapons of mass destruction (basic concepts of the weapons of mass destruction, detection, etc.). With the assistance of the EU, IAEA and the US Government, training and equipment has been provided to Slovenian First Responders, enabling them to conduct complex countermeasures with regard to weapons of mass destruction, ranging from detection of WMD to the prosecution of the offenders. The final stage of training was concluded with the exercise “New Horizons” which included all the actors in this field in the Republic of Slovenia.

4.5 United States of America

4.5.1 Past and present threats

In 1995 the world events turned the US government’s focus toward the threat of terrorism and unconventional weapons.

- *Aum Shinrikyo*, a religious cult in Japan, attacked the Tokyo subway system with the nerve agent sarin.
A threat, thought to be credible, was made to disperse a chemical agent in Disneyland.

UNSCOM and a son-in-law revealed disturbing information about Saddam’s unconventional weapons programs.

Domestic terrorists used a truck bomb to attack the federal building in Oklahoma City.

Radioactive materials were leaking out of the former Soviet Union.

The US Congress and President and others shared the concern both that unconventional terrorism would increase and that First Responders were not properly trained or equipped to mitigate such incidents. Senator Richard Lugar noted: “The preparation [to manage the consequences of the use of unconventional weapons against civilian populations] must take the form of help to local ‘First Responders’ – the firemen, police, emergency management teams, and medical personnel who will be on the front lines if deterrence and prevention of such incidents fail” (LUGAR, 1997).

As a result, the federal government began several training and grant (US DEPT. OF HOMELAND SECURITY) programs to help First Responders in the nation’s largest 122 cities to plan for and respond to unconventional terrorism. The Departments of Defense, Health and Human Services, and Justice each offered slightly different programs to the First Responder communities across the nation. The programs complemented each other: the Defense program offered classroom training, equipment and exercises, the Health and Human Services program built locally-based, inter-agency response teams, and the Justice program offered grants to purchase needed equipment and a methodology to assess the threat in each local community.

Though not without their problems (TUCKER and SANDS, 1999), all three programs succeeded at least partially in at least three ways: (1) they motivated the creation of local and regional working groups comprised of crisis and consequence management officials from local, state, and federal governments; (2) mandated that local jurisdictions create response plans, and more important, go through the process of working together to create these plans (SMITHSON and LEVY, 2000); and (3) increased the level of awareness of the potential possibilities and problems of unconventional weapons.
The successes, or perhaps the degree to which there was success, have been difficult to sustain. Anthrax hoaxes in several cities from 1998-2000 resulted in the creation of response protocols that got away from physical decontamination and moved toward mass prophylaxis. However, communities without actual experience in anthrax responses often fell back to a hazardous materials-type response protocol when confronted with a hoax event. In many cases, the actions of the First Responders fulfilled the perpetrator’s goal to create fear, panic, and confusion. The actual use of anthrax in October 2001 – and the length of time it took to recognize that this was, finally, a real event, as well as the actions of the First Responders – served only to heighten the fears of a jittery nation so recently subjected to the airplane-based terror attacks.

What is the current status in the United States? To appreciate how far the First Responder community in the United States has progressed since 1995, it would be useful to remember the issues with which it struggled then. Many of the issues the First Responder community worked through in the late 1990’s may seem basic now, but their resolution represents a true paradigm shift. These issues included:

1. An appreciation that terrorism affects Americans at home,
2. An awareness of unconventional terrorism involving chemical, biological, radiological, or nuclear weapons,
3. The concept that the planning for and response to terrorism threats and incidents required a multi-disciplinary, multi-jurisdictional approach involving crisis and consequence management agencies from the local, regional, state, and federal governments, and
4. The requirement of a management system that could be efficiently employed by all these agencies during an incident.

Later issues included the integration of public health officials and hospital personnel – not normally viewed as First Responders, although recognized as partners in WMD events involving biological weapons, and critical to the response and mitigation of other types of attacks. Other operational issues included mass casualty decontamination, processing of mass fatalities, laboratory protocols for testing chemical and biological weapons, and the development of workable plans for the quarantine of large populations.
The salient issues in the United States are greater now than they were in 1995. Training and equipment that began in the largest cities has been expanded to include all states, counties, and cities. The quality of both the training and the equipment has improved. Public health has benefited in training, equipment, and experience from increased funding following the anthrax attacks in late 2001 and lessons learned from naturally occurring outbreaks, such as West Nile Virus and SARS. Still, in many areas the First Responder community has not yet meaningfully engaged the hospitals and public health community to plan for and respond to unconventional terrorism. Interoperable communications systems are a critical asset that must be developed with uniform standards and considerable financial assistance.

4.5.2 Lessons (to be) learned

The issues continue to evolve, but the fundamentals - communications, command and control, and coordination – are the foundation upon which all else is built. The foundation is built by training and exercises and learning from local, regional and national experiences through the identification of lessons learned, best practices, and institutionalized standards.

The need to identify lessons learned and establish best practices cannot be overstated. It has been observed that, “Experience cannot be transferred. We may give wise advice, but we cannot give wisdom to follow it” (THE COLUMBIA WORLD OF QUOTATIONS, 1996). This may be true: the lessons learned by others have often been ignored, partly due to a lack of adequate time and resources, and sometimes due to power struggles and inter-agency or inter-jurisdictional squabbles. Within the past two years, numerous excellent reports have been written about the terrorist attacks on September 11, 2001 and the lessons that can be learned from the events that day. In addition, much of this knowledge has been translated into policy and guidance. Highlights from three notable reports can be found in the Appendix of this section (NATIONAL LEAGUE OF CITIES; FEMA, 2002; NIMS, 2004).

Communication has many aspects and each of them is critical to a successful response. First, personnel at the scene must be able to communicate with each other effectively, both within their professions and across professions. When multiple agencies and jurisdictions are working together, as in almost all terrorism cases, they must be able to communicate across organizational systems. First Responders need equipment that is both interoperable and compatible. Interoperability and
compatibility are achieved through the use of such tools as common communications and data standards, digital data formats, equipment standards, and design standards. In most cities in the USA, the police department used one set of frequencies and the fire department used a different, incompatible frequency set. This situation has improved in some areas – thanks in great measure to federal dollars – but it remains a problem in most cities as well as between regions and states.

Second, information must flow. From its source to its recipient, it is useful only if it gets to the right person in time to make effective use of its value. Third, the information must also be tracked. Whether the information is useful to law enforcement for later criminal prosecution or useful to coordinate the movement of resources and personnel or simply required to brief the next shift of responders, information must be tracked. And fourth, public information - both its dissemination and the content of the message - is critical. The public and media will want accurate information from a source it can believe. In its absence, the public will speculate the worst and the media will report something, but without the benefit of the government’s insight. To produce a clear and trustworthy message, all the various responding agencies will communicate through a single public information center. To not do so will make the government appear confused and disorganized, thus causing public apprehension and perhaps an erosion of confidence.

Command and Control is essential when a terrorism incident (or even a threat) occurs, since several agencies are involved in the response, mitigation, or investigation. These agencies have different functions, such as safety (fire, law enforcement, emergency medical services), mitigation (hazardous materials response teams, explosive ordinance disposal units), and investigation (both law enforcement and regulatory), and professional emergency management from the local, state, and federal governments. An effective command and control structure that is both flexible enough to adapt to the situation and able to integrate all the response agencies is vital. The US First Responder community uses the Incident Command System (ICS). In incidents that involve multiple agencies or multiple

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21 ICS has been described: “ICS is the model tool for command, control, and coordination of a response and provides a means to coordinate the efforts of individual agencies as they work toward the common goal of stabilizing the incident and protecting life, property, and the environment. ICS uses principles that have been proven to improve efficiency and effectiveness in a business setting and applies the principles to emergency response”; there are many sources
jurisdictions, such as terrorism incidents, the concept of Unified Command is used. ICS is an effective and efficient system to command and control an event, but only if the personnel in all the agencies responding to the event have been trained and exercised the concept. In this system, no one supervises more than 5-7 people and each person has a specific, defined role. In an exercise or event, a quick method to determine whether the ICS is effective is to ask various personnel two questions: to whom do you report and what is your job? Each person in the structure should be able to answer both questions. It is, perhaps, not surprising that this system is often not effective and/or efficient in agencies where its use is either optional or reserved only for major catastrophes. The requirement to train personnel, exercise it, and practice it with other agencies is vital. The ICS will succeed if these actions are taken, but will be less than fully successful if these actions are ignored.

Coordination begins long before an incident occurs. With multiple disciplines and multiple jurisdictions involved in both the planning for and the response to a threat or act of terrorism, it is useful to know the needs and capabilities of other agencies, as well as the people within those agencies. One of the lasting legacies of the training programs, begun by the federal government after 1995, was a willingness and desire to work with and get to know other responders and their agencies. Most large and medium urban areas formed terrorism working groups comprised of local, state, and federal crisis and consequence management agencies. The purpose of these groups is to provide an opportunity for liaison, to conduct and coordinate training and exercises, and to share information.

Exercise is the means by which we can evaluate and validate our training, plans, and procedures. Exercise planning includes formulating the goals and objectives, what will be tested, developing a methodology for evaluating the exercise, and determining what we do with the “lessons

of information about ICS; for just one source that is useful and comprehensive, see http://www.911dispatch.com/ics/ics_main.html

22 Unified Command: In incidents involving multiple jurisdictions, a single jurisdiction with multiagency involvement, or multiple jurisdictions with multiagency involvement, unified command allows agencies with different legal, geographic, and functional authorities and responsibilities to work together effectively without affecting individual agency authority, responsibility, or accountability.
learned.” The reason is simple: the goal of the exercise is not to conduct an exercise, but to understand capabilities and gaps.

There are three types of exercises and a useful approach to consider their utility has been called “Crawl – Walk – Run.” The three types are:

- **Tabletop Exercise (“crawl”):** This is an exercise for high-level responders. Its goals include: discuss plans and policy issues, discuss command and control issues, determine availability of resources, and evaluate mutual aid agreements.

- **Command Post Exercise (“walk”):** This is an exercise for mid-level responders. Its goals include: validate notification procedures, evaluate communications, and validate access to available resources.

- **Full-Field Exercise (“run”):** This is an exercise for all levels of responders. Its goals include: validate plans and policy issues, validate notification procedures, and validate the training of the First Responders.

Ideally, there is a progression of exercises: tabletop exercise, followed by a command post exercise, and then followed by a full field exercise, or crawl-walk-run. Typically, there will be at least a few and even several weeks between each exercise. This allows sufficient time to identify the lessons learned from one exercise and apply them to the next. In addition to the goals in each of the three types of exercises, the value in conducting exercises in often in the planning of the exercise, rather than its execution. The planning and preparedness stages leading up to an exercise bring together the responders from various agencies to work together through a process. Development of the Master Sequence of Events List (MSEL), evaluation tools, and exercise methodologies allow participants to envision the right response, and how to obtain it from the participants.

An overview of lessons learned from real events of 9-11-01 in the United States is presented in Appendix 2.

*Future challenges* remain, despite the fact that the progress has been great. However, in the absence of solid data, the threat is still often not grounded in reality, but rather, based on worse case scenarios. At present the physical and fiscal fatigue factor is high. First Responders, who eagerly embraced a new mission in the late 1990’s, have been exhausted
by responding to unknown white powders and increased terrorist levels. Local and state budgets have been battered. Though the federal government has distributed billions of dollars to local and state governments, much of the extra expense has been for training and overtime, which are not usually covered by the federal grants. When forced to choose between being able to provide day-to-day services, such as schools, police, fire, and public works, and response measures to protect the homeland, some cities can afford only the former, not the latter. There is also a relatively high turnover rate among responders; many either leave (including retirements) or get promoted or transferred within their agencies to non-response positions. The ability to sustain the training, the level of interest, the commitment of management, and funding all pose challenges.

4.6 Italy

4.6.1 Background

The Italian National Fire Corps is based in the Ministry of the Interior, and has 30,000 professional fire fighters located across the country. There are 20 regions and 101 provinces. This national configuration enables a more consistent training standard across the country, permitting greater flexibility than a locally based organization.

Italy has experienced hazardous materials incidents and accidents over the years. It is also earthquake-prone, has areas of volcanic activity, and has areas that flood. It has long coastlines and many ports, opening the possibility of maritime disasters, water pollution from shipping accidents, and port-related emergencies. This need to be prepared for a variety of natural hazards and technological events has laid the foundation for developing a national approach to emergency response for all hazards, including CBRNE events. The Italian government uses major-risk chemical industries induced hazardous materials events as the paradigm for the design of the system, which works equally well for CBRNE.

Noting that hazardous materials accidents and CBRNE events have much in common, the Italian fire service has evaluated the best way to provide a rapid and efficient response, while also protecting the First Responders from unnecessary exposure to danger, regardless of the cause of the disaster.
4.6.2  Response capability based on uniform systems and equipment

Italy’s national organizational structure results in uniform equipment across the country. Each area has been given an identical cache of equipment and vehicles to ensure the ability to muster a large response to serious events. At least nine response vehicles can be brought to any event within one hour because of the location of identical equipment in each province.

The national response approach also means that every jurisdiction does not need every possible piece of equipment. Specialized items like a turntable ladder or a mobile crane can be strategically placed to be a resource to many areas of the country. Basic response is available in every fire station response area. Intermediate level response is at the provincial level, such as technical experts. Specialist level is available at every one of the twenty regions through the Regional Operating Unit. Coordination of the internal assets and those from outside belongs to the Fire Chief of the province, so there is a clear line of authority and chain of command at any incident scene.

Communication equipment is very important. It saves lives, including the lives of the First Responders. A quick and constant flow of information is necessary to ensure control of the event for the benefit of the victims and the protection of the First Responders. The communication vehicles accommodate 5 people inside with a variety of radios. Each of the 101 provinces has a communication vehicle. These can be used jointly to support a large event.

Italy has not yet adopted the unified European emergency number 112. This number belongs to one of the Italian police forces and other emergency responders organizations have their own number: e.g. Fire Service 115, EMS 118. An improvement has been experienced in some Provinces where, even if each Organization maintains its own emergency number, the operation center is shared in the same facilities. This enhances significantly the interagency communication capabilities and consequently the safety of the First Responders.

Italy has also adopted the Incident Command System (ICS) as the national standard for the command and control of emergencies. Specific training is provided in the latest courses developed for CBRN command level for the Officers of different ranks in the National Fire Corp. Unified Command based on the Incident Command System (ICS) is going to be used at large
events also to coordinate the work of responders across jurisdictions, similar to the Incident Command System used in the United States. Similar ease of interoperability could be developed across jurisdictional and national lines through a wider adoption of a common command and control system, like ICS.

Because every part of Italy has the same equipment there are great economies of scale achieved. Uniform equipment may be procured at better prices. Spare parts are interchangeable for the equipment, which is a real benefit at a large event where various provinces are presented. All personnel use the same personal protective equipment (PPE), so replacements are readily available at a response scene.

Because the Incident Command System is used throughout Italy, personnel can operate effectively at any disaster scene, regardless of which province they may be in. Joint training also offers savings in allowing for the development of one set of training tools and equipment, including audio-visual materials and text books, which are used nationally.
4.6.3 Eight steps to CBRNE emergency response

The Italian approach to the CBRNE conventional event has eight steps. This system is very similar to the one developed in U.S. called “The Eight Step Process”. Scene control is followed by a size-up and risk evaluation. Appropriate PPE is selected based on the size-up. Information management is achieved through the Incident Command System, and an Incident Action Plan establishes the goals for the action period. Resources are coordinated to rescue victims, decontaminate victims, provide immediate medical treatment on the scene, and rapidly transport victims to definitive medical care. The incident is over when the goals have been achieved, including restoration of the site to safety. This system has shown to be very effective when used also for non-conventional events.

First they take control of the site to protect the public. Next, they zone the area and determine if the area is dangerous or not dangerous. The Italian system actually uses a four square box based on two words: operational and dangerous.

- The most affected area where nobody can enter because it is too dangerous (too high level of contamination or risk of collapse or secondary devices) is designated as dangerous and NON-operational. Usually these are smaller interdicted areas, inside a larger hot zone.
The next ring is the internationally recognized hot zone, which is considered “dangerous but operable”, where First Responders with appropriate procedures and PPE can provide rescue, immediate treatment and transport to victims.

The next zone is potentially dangerous and operable, where First Responders will still wear PPE. (Warm zone)

The next ring out is not dangerous and operable, where First Responders can assist victims without wearing PPE, so more advanced medical care can be given. (Cold zone)

There is an outer most “green zone” which is non-operational and non-dangerous, and can house the media, and serve as a staging area.

Regarding the level of protection for the First Responders there is a continuous ongoing re-evaluation of former procedures that have shown – during large-scale exercises - to be mostly “defensive”. The procedures have shown that today we have reached a high level of awareness regarding the level of protection for the First Responders, but there might be a significant margin of improvement in terms of more “aggressive” rescue. This, obviously, shall be improved without raising the risk of exposure for the rescuers. In simple words, the most important message is that we shall always improve our risk-analysis capabilities, in order to provide the most adequate protection and the better lifesaving results.

Italy has also adopted common documents for determining how to manage decontamination and response at hazardous material scenes. Among these documents there is the Emergency Response Guidebook (ERG) developed in North America. Having just one evaluation document simplified training for personnel, and provides for uniform markings on containers and vehicles. As this book is already an international consensus document, and available in languages of the E.U. (English, French, German, Spanish, Portuguese), it provides another opportunity for a common management system. With the guidance of the ERG the isolation zone and protective action zone can be identified, and protective actions can begin for both the disaster site and the greater community downwind.

Decontamination can be undertaken in the transition between the potentially dangerous and non-dangerous areas for both victims and First Responders. Resolution of the event comes when the victims are cared for and the site is secure and not a threat to the public. Additional decontamination of the environment may still be needed.
The outer working perimeter is shared with fire, police and emergency medical services personnel. A plume model is run to create the boundaries of the exclusion zone (dangerous and potentially dangerous). The hot zone is then defined with instruments and detectors. Multi-agency planning underlies the ability to share the response effectively.

The suite of response vehicles available to Italian Fire Corps personnel provides a comprehensive response capability, including command, rescue and first medical care (with Red Cross and local EMS services), and decontamination. The fact that this same vehicle suite is available at every province makes the management of large or small incidents scalable.

4.6.4 Possible model for E.U. development

Italy has found that the adoption of the Incident Command System as a national model has greatly enhanced the ability to bring assets together effectively for large events. The successful application of the Incident Command System nationally in Italy raises the possibility that ICS might be useful on a multinational basis, and there is the capability of exporting
that same system across the European Union. Italy has adopted the ICS from the American National Fire Academy.

ICS is used in U.S. across the fifty States, each of which has its own unique laws and regulations governing emergency response, tort law, and liability issues. Some E.U. nations may have concerns that existing systems and national sovereignty would be challenges for implementation of an EU-wide emergency response method. However, Italy has demonstrated the benefits of nationwide integration in bringing to bear large numbers of personnel and equipment rapidly for a more effective disaster response. This model could provide an incentive to consider moving toward some consensus methods for cross-border emergency and disaster assistance within the E.U. Day to day savings in procurement of equipment and delivery of training, as well as interoperability at large scale, multi-jurisdictional events, point to benefits in developing common command and control systems and common equipment standards.