CBRN Threats and Incidents Involving Non-state Actors – 2022 Annual Report

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Sammanfattning

Inga kända attentat med CBRN-ämnen som genererat omfattande negativa konsekvenser skedde under 2022. Trots den positiva utvecklingen under de senaste åren finns det en fortsatt oro för att attentat kan inträffa. Drivande faktorer bakom oron kan ofta kopplas till retorik och informationsspridning som förekommer i extremistkretsar, enskilda uppgifter om attentatsplanering samt de potentiella skadeeffekter attentat med CBRN-ämnen kan generera i samhället.

Enskilda incidenter har förekommit under året som gått, där misstankar om attentatsplanering i Europa har medfört insatser från brottsbekämpande myndigheter, samt enstaka uppgifter om genomförda attentat som skördat dödsoffer i Somalia, dock utan konkreta uppgifter om förövare, använt ämne eller hur attentatet genomförts.

Författarna kan konstatera att giftiga ämnen fortsatt används i syfte att hota, skrämma och skada andra människor. I de flesta fall, som kommit författarna till kännedom, har hoten riktats mot individer som står i nära relation med attentatspersonen. Hot som anspelar på giftiga och smittsamma ämnen förekommer också i finansiella opportunistiska syften eller för att manifestera missnöje mot företag, myndigheter eller andra offentliga funktioner och personer.

Nyckelord: ickestatliga aktörer, terrorism, kriminalitet, bioterrorism, förgiftning, CBRN, hotbedömning, årsrapport

Summary

The aim of this annual report is to present an updated assessment of the threat posed by non-state actors' use of chemical, biological, radiological, or nuclear (CBRN), materials to cause adverse effects on society. The content is based solely on open-source information and includes a selection of incidents that occurred in 2022. The report has been produced by a research group at FOI (Swedish Defence Research Agency), with a grant from the Swedish Ministry of Defence.

There were no confirmed attacks with CBRN agents that caused significant adverse consequences in society during 2022. Despite the positive developments in recent years, there are still concerns that attacks may occur. The driving factors behind these concerns can often be linked to rhetoric and information dissemination in extremist circles, individual details of attack planning, and the potential of attacks with CBRN materials to cause adverse effects on society.

In one case in Europe, suspicions of planning for an attack with CB agents resulted in action by law enforcement authorities. Also, there are isolated reports of an attack that resulted in fatalities in Somalia, but in this case concrete information on the perpetrator, the substance used, or how the attack was carried out is missing.

The authors note that poisonous substances continue to be used relatively often to threaten, intimidate and harm other people. In most cases that have come to our attention, the threats have been directed at individuals who are closely related to the perpetrator. Threats referring to poisonous or infectious substances are also used for financially opportunistic purposes, or to demonstrate dissatisfaction with companies, authorities, or other public functions and people.

Keywords: non-state actors, terrorism, crime, bioterrorism, poisoned, CBRN, threat assessment, annual report.

Innehållsförteckning

Introduction

This annual report is produced in the framework of a project that has the task of assessing the threat that non-state actors pose through the use of chemical, biological, radiological, or nuclear (CBRN), materials to create adverse effects on society. The ongoing research is financed by a grant from the Swedish Ministry of Defence. In addition to this annual report, we continuously produce different types of oral and written materials that highlight this type of threat. The research is aligned in cooperation with the Swedish Government Offices, who are also the main receiver of the results generated. This annual report is the regularly recurring product that presents results that can be distributed to a wider circle of recipients. This is the eleventh report in the series.[1]

This report is intended to reflect the results of our continuous open-source intelligence monitoring during 2022 and to provide an overall description of relevant incidents that have occurred.[2] Furthermore, assessments concerning the likelihood of CBRN materials being used by non-state actors are provided. The report is based exclusively on open-source information covering a selection of incidents deemed to be of relevance. It does not represent a complete review of all information gathered by the members of our research team. The purpose of the report is to fulfil a strategic function by presenting a general summary, on an annual basis, of relevant and assessed incidents. From this material, deviations and trends can be identified over time.

[1] The corresponding reports for 2012–2021 can be downloaded from the FOI website, www.foi.se. The 2012–2017 reports are only available in Swedish.

[2] When a date appears in the report, without a particular year being stated, it refers to an incident that occurred in 2022.

Perspectives on CBRN threats from non-state actors

The international terrorist organisations, al-Qaeda and the Islamic State in Iraq and Syria (Daesh), continue to pose a threat to international peace and security. However, their capabilities and structure have continued to be weakened by international counterterrorism efforts. Daesh's leader, appointed by the organisation in January 2020, was killed on February 3, in Syria, near the border to Turkey, following a US-led counterterrorism operation. In July, the al-Qaeda leader was killed in central Kabul, in a targeted operation against a building reportedly belonging to the Haqqani network, one of the most influential organisations of the Taliban. The incident highlights the close relationship that exists between al-Qaeda and the Taliban movement in Afghanistan. At the same time, Daesh's branch in Afghanistan, the Islamic State of Khorasan (ISKP), has been conducting extensive fighting and attacks against the leading Taliban movement. Both al-Qaeda and Daesh are strengthening their positions in conflict-affected areas in Africa, Central and South Asia, and the Middle East. UN expert groups assess the ability of these organisations to carry out terrorist attacks outside these conflict areas as low.[3, 4, 5]

The Taliban takeover of governance in Afghanistan and the actions of their leadership clearly indicate a return to the leadership that characterised the country in the late 1990s. Furthermore, its close relationship with the al-Qaeda leadership raises concerns about possible capacity-building amongst terrorist groups in the country and intended for future external operations.

The trend, in recent years, of relatively few CBRN incidents, and of a decrease in the appearance of information on terrorists approaching CBRN materials, continued in 2022. No CBRN-related terrorist attacks with the potential to cause widespread adverse effects took place in the past year. The incidence within extremist environments of calls, instructions, or threats, to use CBRN materials has also been limited.

Ongoing investigations into Daesh activities involving chemical and biological agents continue to provide greater insight into individual incidents, as well as into the capability-building activities of the terrorist organisation in Iraq and Syria during 2013–2019. Daesh's use of chemical weapons and its attempts to

[3] Thirteenth report of the Analytical Support and Sanctions Monitoring Teams pursuant to resolution 2611 (2021), S/2022/419, 26 May 2022.

[4] Thirty-first report of the Analytical Support and Sanctions Monitoring Teams pursuant to resolution 2610 (2021), S/2023/95, 13 February 2023.

[5] Letter dated 1 September 2022, from the Panel of Experts on Somalia, S/2022/754, 10 October 2022.

develop capabilities to use biological agents and toxins in its warfare in the conflict zone have been described in previous editions of this annual report.

In January, the Organization for the Prohibition of Chemical Weapons (OPCW) published the results of its *Fact-finding Mission* (FFM) in Syria.[6] The FFM report concluded that witness reports and laboratory findings point to the use of a variant of the chemical warfare agent, mustard gas, against the town of Marea, north of Aleppo, on September 1 and 3, 2015. The FFM's conclusions are based on, among other things: analysis of samples from two sites where shells filled with a dark, oil-like and smelly liquid had landed; reported symptoms among victims; and witness statements linked to the attacks. The investigation also described the conditions in the area at the time that artillery shells containing mustard gas were fired at the city, and notes that the shelling came from areas under Daesh control, just east of the city. The shelling was part of Daesh offensive actions against Marea, which lasted several weeks and included artillery shelling, suicide bombs, and vehicle-borne explosive devices. The data from the Marea incident is consistent with other reported attacks by Daesh, in both Iraq and Syria, which caused deaths and injuries with symptoms typical for victims of mustard gas.

Further ongoing investigations concerning Daesh activities with biological and chemical weapons are being carried out within the framework of UNITAD[7] activities. UNITAD, which is mandated by the UN Secretary-General to investigate Daesh war crimes during the conflict in Iraq, published two reports this year detailing the progress of the investigations.[8, 9] The investigations relate specifically to Daesh attacks on Taza Khurmatu, in northern Iraq in early March 2016, as well as written and electronic evidence demonstrating Daesh's capability-building, regarding production, testing and training activities. The reports state that Daesh's chemical and biological activities included the development of several toxic agents and a range of weapon delivery and dispersal devices, and that these activities could be linked to the senior leadership of the organisation. Among the agents reportedly sought by the terrorist organisation were nitrogen mustard gas, chlorine gas, aluminium phosphide, nicotine, thallium sulphate, ricin, and the toxin-producing bacterial strain, *Clostridium botulinum*, which was accompanied by an interest in acquiring anthrax spores. The weapon carriers developed by Daesh to deliver these agents included artillery shells, rocket-propelled grenades, rockets with a chemical, or biological, warfare component and improvised explosive devices. The

[6] OPCW issues Fact-Finding Mission report on chemical weapons use allegation in Marea, Syria, in September 2015, OPCW, 26 January 2022.

[7] United Nations Investigative Team to Promote Accountability for Crimes Committed by Da'esh/ISIL.

[8] UNITAD Special Adviser, 8th report to the UN Security Council, 26 May 2022.

[9] UNITAD Special Adviser, 9th report to the UN Security Council, 8 November 2022.

investigation also identified locations where these development and production activities have taken place, including at Mosul University, where laboratories, equipment and many starting materials were already available.

During the period of Daesh leadership and territorial control in Iraq and Syria in 2013–2019, several preparations for attacks in Western countries were disclosed, as well as revelations of extensive propaganda, including information on the use of CBR agents, which could be directly linked to the terrorist organisation. In many respects, Daesh acted as a business incubator for Islamist extremist communities in the West, with some of the activities and interest extending to CBR agents. The relatively few examples of propaganda and activity in this area during the past five years can probably in part be attributed to the successful targeting of Daesh capabilities and activities in Iraq and Syria.

Hassan Nasrallah, the leader of the Lebanon-based terrorist organisation, Hizballah, threatened during a speech on September 17 to launch missiles against Israel's extraction facilities in the Karish gas field, off the coast of Israel. The threat was made the day after the Israeli energy minister announced the initiation of activities to test the connection of the gas field to Israel's state gas network.[10] In early July, Hizballah sent three reconnaissance drones towards the gas field, all of which were shot down by Israeli air defences. The gas field lies in a disputed area on the border between Lebanon and Israel, but an agreement between the two countries on the maritime border was signed at the end of October. The day before the agreement was signed between the parties, Israel had started extracting gas from the gas field. Nonetheless, Lebanese President Michel Aoun stressed that the agreement is not a recognition of the State of Israel by the Lebanese government and that Lebanon remains in conflict with its neighbour.[11]

Hizballah has previously issued threats to strike Israeli infrastructure, with the aim of causing major negative effects for Israeli society. In February 2016, Nasrallah threatened to fire missiles at large industrial ammonia tanks in the Haifa port area. In February 2017, the threat was repeated against Haifa, as well as against eight other Israeli targets, including the Dimona nuclear reactor in southern Israel.[12] None of these threats have been realised through attacks, but they have prompted special security measures from the Israeli side. The chemicals in the port of Haifa were moved to another storage site in 2017. Through extensive support from Iran, Hizballah probably has access to many

[10] TOI staff & AFP, Nasrallah warns Hezbollah missiles are 'locked on' offshore Israeli gas field, The Times of Israel, 17 September 2022.

[11] M. Gebeily & M. Lubell, Israel, Lebanon finalise maritime demarcation deal without mutual recognition, Reuters, 27 October 2022.

[12] Anonymous, Hezbollah says 'no red lines' for striking sensitive targets in Israel, i24 News, 21 February 2017.

advanced missile systems, as well as its own developed program for unmanned aerial vehicle systems.

Europol's annual *Terrorism Situation and Trend Report*, published on July 13, found that 15 reported and attempted attacks took place in the European Union in 2021. Of these, eight attempted attacks and three completed attacks were linked to attackers from radical jihadist environments. Another completed attack was linked to an actor from the far left. None of the attacks or attempted attacks involved any CBRN materials. The report also states that in 2021 only isolated pieces of information that were linked to extremist propaganda had any CBRN content. In general, the online propaganda recirculated old information already previously seen in extremist circles.[13]

In late September, two civilians in a small village in the Hiran region of Somalia were allegedly poisoned by the terrorist group, al-Shabaab. The two persons became seriously ill, and shortly afterwards died, as a result of drinking water from the only water well in the village. At the time, the villagers had been threatened by Al-Shabaab, who tried to force them to evacuate the village.[14] The terrorist group had previously been reported to have poisoned wells to force takeover of territories in the country. In January 2017, several people were reported to have died as a result of poisoned well water near Baidoa. There is no concrete information on the exact symptoms of those poisoned, or the agents used by the terrorist group. The terrorist group's poisoning of wells to displace civilians was highlighted by the UN Human Rights Chief, High Commissioner Volker Türk, in November.[15]

In June, NATO presented an updated strategic concept for the Alliance's future operations, highlighting the need to adapt NATO's role and functions to current and future security threats. The document states that international disarmament and export control regimes and mechanisms have been eroded, creating negative effects on strategic stability. In particular, the document highlights the actions of Russia, but also of countries such as Iran, North Korea and China, as well as non-state actors, as reasons behind this negative trend. NATO's updated concept therefore stresses the importance of the Alliance's investing in its defence capabilities against CBRN threats and strengthening its policies, plans, training and exercises in support of deterrence and defence capabilities. Along with the updated concept, NATO also published its CBRN defence policy, which describes in more detail the threat perception and the principles for capabilities and resilience within the Alliance. The policy document states, among other

[13] Europol, European Union Terrorism Situation and Trend Report 2022, Europol, 13 July 2022.

[14] Anonymous, Two die after drinking from water well poisoned by Al-Shabaab in Mahas, Hiran region, Goobjoog News, 29 September 2022.

[15] UN Human Rights, Somalia: Human rights chief decries steep rise in civilian casualties, United Nations News, 14 November 2022.

things, that non-state actors, including terrorist organisations, continue to seek capabilities to use CBRN agents to strike various targets within the countries of the Alliance.[16]

[16] NATO, NATO's chemical, biological, radiological and nuclear (CBRN) defence policy, North Atlantic Treaty Organization, 5 July 2022.

Threats, rhetoric and dissemination of information

Dissemination of information aimed at inspiring attacks with toxic and infectious agents regularly occurs within radical environments. Examples in recent years of discussions and propaganda with references to CBRN materials are found in all extremist environments and constitute a possible indicator of the interest in this type of attack that may exist among these actors. However, the extent of these components has decreased during the last four years. This is possibly an effect of the increased awareness of the need for operational security and the perception, by those individuals and groups seriously seeking to inspire and enable attacks in Western countries, of the risks of detection by security services and law enforcement authorities. A further reason for the decline in overt information dissemination in this area may be that one of the former leading organisations behind this type of information, Daesh in Syria and Iraq, has no longer had the same ability to conduct such activities after the organisation and its territorial control were virtually eliminated in 2019.

CBRN-related information dissemination has also been frequently recurring within factions linked to the far-right movement. This has also been the case in the past year, not least because of the political developments and polarisation in the United States.[17] Often the information dissemination that still occurs consists of mostly rhetorical statements with limited value for individuals seeking operationally useful information for conducting an attack with CBRN materials.

[17] See, for example, Bioweapon attacks incited on neo-Nazi forum following US midterm elections, Bioterrorism and Public Health, Site Intelligence Group, 11 November 2022.

Incidents with nuclear and other radioactive materials

The purpose of this section is to highlight incidents related to smuggling, threats, theft, and terrorism involving radioactive materials, including the more specific nuclear materials.[18] The incidents highlighted in 2022 are similar to those previously reported in this series. The assessment is that none of the highlighted 2022 incidents posed a threat to international security. It should be emphasised that incidents from war actions in Ukraine are not a topic for this report.

The information reported here comes from open sources, mainly news articles, but also to some extent from the IAEA Incident and Trafficking Database (ITDB).[19] In 2022, 146 cases were reported to the ITDB, of which 73 occurred in Europe.

Information on lack of nuclear security

In an article published in The Diplomat on March 12, India's nuclear security deficiencies at several levels were highlighted.[20] According to the article, about 200 kg of nuclear and other radioactive materials have disappeared from nuclear facilities in India in the last 20 years. The Nuclear Threat Initiative is an independent organisation that assesses the progress of states in nuclear security, highlights security gaps, and makes recommendations to improve security in areas such as theft of materials and sabotage of facilities.[21] In their latest assessment (2020), India ranks at the bottom of the list of states assessed in these areas, ranking 20th out of 22 states assessed for security of materials, and 38th out of 47 assessed for protection of facilities. Illegal activities involving non-state actors is another area where India received a low score. Other problem areas include legislative deficiencies, lack of an independent nuclear security authority, insider threat prevention, and physical protection during transportation. Our 2021 annual report mentions that Pakistan officially criticised India for failing to control nuclear materials after an incident in February 2021.[22]

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[18] Nuclear materials can briefly be described as metals (plutonium, uranium, and thorium) that may be used in the construction of a nuclear device.

[19] IAEA, International Atomic Energy Agency, www.iaea.org

[20] Sitara Noor, India's Radioactive Bazaar, The Diplomat, 12 March 2022.

[21] Nuclear Threat Initiative, The NTI Nuclear Security Index 2020 (www.ntiindex.org), 2020.

[22] Magnus Normark, Anna-Karin Tunemalm, Anna Vesterlund, Per Wikström, Daniel Wiktelius, CBRN threats and incidents involving non-state actors – 2021 annual report, page 15, FOI-R--5331--SE, July 2022.

In this context, it may be worth mentioning that according to the NTI Nuclear Security Index 2020, Pakistan ranks only one place above India in the category of security of materials, 19th out of 22, and 33rd out of 47 in the category of protection of facilities. On a more positive note, Pakistan, among the countries with weapons-usable nuclear materials, was the one that improved its previous rank the most concerning theft of material.

Thefts

Many radiation sources go missing, accidentally or deliberately, every year. The following paragraph briefly describes incidents where it is obvious that the sources were deliberately removed by a perpetrator.

A so-called Troxler[23] disappeared on the night of March 1, in Drogheda, about 25 km north of Dublin, Ireland. The equipment was reportedly stolen from a van.[24] On March 15, another Troxler was reported stolen from a van, 25 km south of Madrid, Spain.[25] A third Troxler was reported stolen in April, this time in Philadelphia, USA. A vehicle that had been stolen was missing the equipment containing the radioactive sources when it was recovered.[26] On September 14, a vehicle with an Ir-192 radiation source was stolen in Mexico. The activity of the source at the time of the theft was 433 gigabecquerel (11.7 Curie). In the event of a direct contact with such an unshielded source, a short exposure (minutes to hours) can permanently injure a human being and a longer exposure (hours to days) can prove fatal.[27] The Mexican source was safely recovered after three days.[28]

[23] Troxlers are commonly used, for example, in road construction. They contain a Cs-137 source to measure the density of soil, and a neutron beam americium-beryllium source to measure the moisture content of the roadbed.

[24] EPA Ireland, Theft of a gauge containing a radioactive source, Environmental Protection Agency, 1 March 2022.

1 [25] Sam Jones, Spain: call for return of stolen kit containing radioactive material, The Guardian, 15 March 2022.

[26] Nicole Acevedo, Portable nuclear device missing from stolen vehicle in Pennsylvania, NBC News, 16 April 2022.

[27] An Ir-192 radiation source with activity of 433 GBq is classified as a category 2 source according to IAEA-TECDOC-1344.

[28] Victor Gonzalez, Missing dangerous source at Estado de Mexico, IAEA INES News, 19 September 2022.

Nuclear smuggling incidents

Eight people were arrested in February, on the outskirts of Kathmandu, Nepal, on suspicion of smuggling 3 kg of uranium.[29] Following a tip-off, police found a "uranium-like" substance in a car outside the Hyatt Regency Hotel, in the Bouddha area of Kathmandu. Reports claim that the smugglers were looking for potential buyers of the material. When the eight suspects were arrested, the police could not identify two of them. They were later identified as Indian nationals.[30]

In early July, another smuggling incident occurred in Biratnagar, Nepal, near the Indian border. In this incident, a total of 15 people were arrested; they reportedly intended to smuggle a total of 2 kg of uranium to an unnamed country via neighbouring India.[31] After testing, it was concluded that the material offered for sale was not uranium.[32] In our 2021 annual report, we described similar incidents, one in Nepal and three in India.[33]

On December 29, an incoming object triggered a radiation detector at Heathrow Airport, in London. The object that set off the alarm was later claimed to be scrap metal contaminated by traces of uranium.[34] The cargo, which arrived on a flight from Oman, allegedly originated in Pakistan and the recipient was an Iranian-registered company in the UK. According to Richard Smith, head of the Counter Terrorism Command of the London Metropolitan Police, the incident was not considered as posing a threat to the public. A former military intelligence officer, Philip Ingram, speculated that the cargo may have been a test by Iranian terrorists, during the ongoing strike by UK border guards, to see if materials of higher potency would later be able to get through border controls. Experts in the metal-recycling industry highlighted that it is "pretty much unheard of" to ship scrap metal around the world by air freight, because of the costs involved.[35] The normal procedure is to send such shipments by road or in shipping containers

[29] Himalayan News Service, Eight suspected uranium smugglers held, The Himalayan, 16 February 2022.

[30] News Desk, Two Indians arrested in alleged uranium smuggling, Global Village Space, 16 February 2022.

[31] Opindia Staff, Nepal: Police seize two kg Uranium before smugglers take it to India, 15 arrested, Opindia, 24 July 2022.

[32] Chuman Basnet, Item recovered from two places in Biratnagar in mid-July is not uranium, My Republica, 5 August 2022.

[33] Magnus Normark, Anna-Karin Tunemalm, Anna Vesterlund, Per Wikström, Daniel Wiktelius, CBRN threats and incidents involving non-state actors – 2021 annual report, page 14-15, FOI-R—5331—SE, July 2022.

[34] Jane Clinton, Man arrested on suspicion of terror offence after Heathrow uranium seizure, The Guardian, 16 January 2023.

[35] Martin Evans & Charles Hymas, Uranium found at Heathrow 'could have been part of dry run by Iranian terrorists,' The Telegraph, 11 January 2023.

and, according to people in the scrap-metal industry, transportation by air of scrap metal has previously been unknown. On January 14, 2023, a 60-year-old man linked to the transport was arrested in Cheshire, on suspicion of violating UK terrorism legislation. A search was carried out at the address where the man was arrested. However, no material that could pose a threat to the public was discovered. The following day, the man was released on bail.[36]

Terrorist threat

In January, Jitesh Thakur, a man of 35, was arrested in Madhya Pradesh, India.[37] Jitesh, who claimed to work for the army and was reportedly an unemployed habitual drinker, allegedly called the police and threatened to detonate a nuclear device. The phone call triggered an unsuccessful search for the perpetrator, although Jitesh was later arrested, identified from his mobile phone number. He was charged with giving false information to the police, which he seemed to have done on several previous occasions.

UAV observations near nuclear power plants

Observations of UAV flights over nuclear power plants in Sweden have been described in previous annual reports,[38, 39] and in January 2022 it was reported that UAVs were again observed in the airspace over the Oskarshamn and Forsmark nuclear power plants.[40] At about the same time, unidentified flying objects were also observed at Ringhals nuclear power plant and the nuclear power plant in Barsebäck, which is under decommissioning.[41] The police initially announced that the observed objects were UAVs, but this was later changed to the category of observations whose nature could not be confirmed. The sightings

2 [36] Baranjot Kaur & William James, Man arrested after uranium found at UK's Heathrow Airport, Reuters, 15 January 2023.

[37] PTI, Man held for hoax terror call in M.P., The Hindu, 10 January 2022.

[38] Magnus Normark, Anders Lindblad, Björn Sandström, Anna-Karin Tunemalm, Per Wikström, CBRN-hot från ickestatliga aktörer – Årsrapport 2015 [CBRN threats involving non-state actors – annual report 2015], page 22, FOI-R--4192--SE, December 2015.

[39] Magnus Normark, Anders Lindblad, Anna-Karin Tunemalm, Anna Vesterlund, Per Wikström, Daniel Wiktelius, CBRN threats and incidents involving non-state actors – 2020 annual report, page 19, FOI-R--5136--SE, March 2021.

[40] Fredrik Fahlman/TT, Okänd drönare flög över kärnkraftverk [Unknown drone flew over nuclear power plant], Svenska Dagbladet, 15 January 2022.

[41] Mimmi Nilsson, Drönarflygningar över kärnkraftverk utreds som särskild händelse [Drone flights over nuclear power plants investigated as a special incident], SVT Nyheter, 16 January 2022.

led police to prepare several reports based on violations of the Protection Act, the Aviation Act, and unauthorised imaging of protected objects.[42]

Computer breach knocks out national radiation monitoring system

In July, Spanish police arrested two persons accused of carrying out a computer breach that knocked out more than a third of Spain's national gamma radiation monitoring system, Red de Alerta a la Radiactividad.[43] The monitoring system sends out an alert if radiation levels exceed what is considered normal. The intrusion is claimed to have taken place between March and June 2021. The two accused persons worked for a company responsible for maintenance of the system. The computer intrusion was made possible by, among other things, their detailed knowledge of the system, which also allowed them to conceal their own involvement in the hack, and complicated the investigation. The arrest was the result of a year-long investigation.

[42] TT, Drönare vid kärnkraftverk utreds som nationell särskild händelse [Drones at nuclear power plants investigated as a national special incident], Ny Teknik, 17 January 2022.

[43] Pieter Arntz, Radioactivity monitoring and warning system hacked, disabled by attackers, MalwarebytesLabs, 28 July 2022.

Incidents with chemical materials

Poisonings with toxic chemicals are the most common CBRN incidents, irrespective of whether they are antagonistic, self-inflicted, or accidental. This observation is correct in both domestic and international settings, and is valid both for 2022 and the ten previous years (2012–2021) that we have produced this annual report.

In 2022, no severe attacks or incidents involving toxic chemicals and linked to non-state actors were reported. However, as in previous years, there were several other incidents and phenomena related to toxic chemicals that in the context of this review seem relevant to highlight.

Sweden

In 2022, it emerged that the sudden death in Skövde, August 2018, of a 64-year-old man was probably caused by deliberate poisoning with the chemical element, antimony.[44] From 2019 until now, the Swedish daily newspaper, *Svenska Dagbladet*, has published 17 investigative articles about the case.[45]

After having lunch, the victim suffered acute stomach pains, vomited, and experienced severe headache and numbness of the tongue before he later passed away at the local hospital. The Swedish National Board of Forensic Medicine concluded that the man had died of a heart attack and pneumonia; no poisons or drugs that could have initiated a heart attack were detected in his body.[46] The preliminary investigation was therefore dropped.

However, the children from the man's previous marriage appealed the decision, arguing, among other things, that the man's wife and her adult son, who had also attended the lunch and benefitted financially from his death, had not been questioned by the police.

The man had met his wife online two years earlier and she had then moved to Sweden from South America. The woman, who was said to be a chemical engineer, was unable to find a job in Sweden and the relationship looked about to end when the woman proposed marriage. Eight weeks before the man died, one

[44] Antimony is a semi-metal that occurs mostly as a sulphur compound in nature (antimony lustre). The pure chemical is significantly less toxic than when present in various compounds. Antimony is used in the electronics industry, cosmetics and as a colouring agent. In medicine, antimony compounds are used to induce vomiting and to treat certain parasitic diseases. The substance disrupts several metabolic processes in the cell and the mechanism of poisoning shows similarities with arsenic.

[45] Hur dog Stefan? [How did Stefan die?], svd.se/story/giftgatan-stefan, Svenska Dagbladet, 2019 – 2022.

[46] Frida Svensson, Fyndet i Stefans blod gav kemiprofessorn gåshud [The finding in Stefan's blood gave the chemistry professor goosebumps], Svenska Dagbladet, 7 April 2022.

of the woman's adult sons arrived in Sweden. Both the woman and her son returned to their home country shortly after the funeral.

A new prosecutor ordered the Swedish National Board of Forensic Medicine to carry out additional tests, which then revealed that the man's blood had high levels of antimony. After some controversy, in July the prosecutor stated that the man had probably died as a result of poisoning, but without specifying a poison.[47] Despite the new findings, the prosecutor's office decided to close the case, as they were unable to link a suspect to the poisoning. As a consequence, the investigation was remitted to the Cold Case Group in Police Region West.

Another suspected poisoning occurred in July, when a woman in her twenties was taken to hospital, together with a man and woman, both in their fifties, for medical checks; they were suspected of having had their drinks spiked with an unknown substance, at Axevalla horseracing track.[48] Blood samples were taken in connection with the incident and analysed by the National Forensic Centre. The samples turned out to be negative, with nothing unusual found in the blood, and the investigation was later closed.

Finland

In July, a woman was suspected of spreading an unknown substance in a rooftop bar in Helsinki. The woman had left the bar by the time it had to close because of the incident. By then, three of the staff had developed symptoms, which the news article did not describe in detail. The woman was eventually found and arrested five days later.[49] The investigation was eventually closed, since no substance from the suspected release could be identified, neither through forensic methods nor interrogation.[50]

United Kingdom

A 27-year-old nurse at Birmingham Children's Hospital was arrested in May on suspicion of poisoning an infant. She was later released pending the outcome of

[47] Frida Svensson, Åklagare: Stefan i Skövde förgiftades [Prosecutor: Stefan in Skövde was poisoned], Svenska Dagbladet, 21 July 2022.

[48] Wendela Antepohl, Tre personer till sjukhus – misstänks ha fått spetsad drink [Three persons in hospital – are suspected of having received spiked drinks], Göteborgs-Posten, 23 July 2022.

[49] Julia Lönnfeldt, Polisen har gripit kvinnan som spred okänt ämne i hotell Torni – misstänks för tre brott [Police arrest woman who spread unknown substance in Hotel Torni – suspected of three offences], Hufvudstadsbladet, 13 July 2022.

[50] News Desk, Hotelli Tornin tuntemattoman aineen levitys ei etene syyteharkintaan [The release of unknown substance at Hotel Torni does not proceed to prosecution], Police of Finland, 16 August 2022.

the police investigation.[51] The outcome of the investigation is still publicly unknown.

The UK is the country where acid attacks by male gang criminals in various types of criminal encounters are particularly prevalent. Per capita, the UK has one of the highest rates of recorded acid attacks in the world, and London has been described as the Western world's acid attack hot spot.[52] This type of attack increased significantly in the 2010s.[53] Several incidents were also reported in 2022.[54, 55] Acid attacks in the UK were already identified in our 2017 annual report as a recurring problem.[56]

Germany, Netherlands

In Germany, one person died and eight people fell ill after drinking from an exclusive bottle of champagne, which unbeknownst to those who drank had been filled with an ecstasy solution (active ingredient MDMA, 3,4-methylenedioxymethamphetamine). The champagne, a three-litre bottle of Moët and Chandon Ice Imperial, was found to have been emptied of wine, filled with ecstasy solution and re-corked. A Europe-wide alert was issued, as it was suspected that an entire batch could have been tampered with.[57] Another four people, this time in the Netherlands, also fell ill, probably as a consequence of drinking from a tampered bottle.[58] At the time of writing, a perpetrator has not been identified.

A 2021 poisoning incident in Germany was reported in 2022. A female student was suspected of poisoning food and drinks, causing seven people to fall ill at a

[51] Matthew Weaver, Nurse at Birmingham hospital held on suspicion of poisoning after death of child, The Guardian, 23 May 2022.

[52] Webinar Event, Tackling acid attacks: Strengthening legislation, reducing access to corrosive substances & increasing convictions, 10 November 2022.

[53] Freedom of information request reference no: 01.FOI.21.015244, Incidents of violence using corrosive substance – May 2002-October 2020, London Metropolitan Police, 11 November 2021.

[54] Anonymous, Teenager left with life-changing injuries after Waltham Forest 'acid attack,' itvNEWS, 21 June 2022.

[55] Neal Keeling, Gangland enforcer charged £6,000 for horrific acid attack and plotted to blind other victims, Manchester Evening News, 27 May 2022.

[56] Magnus Normark, Anders Lindblad, Stina Holmgren Rondahl, Anna_Karin Tunemalm & Per Wikström, CBRN-hot från ickestatliga aktörer – årsrapport 2017 [CBRN threats and incidents involving non-state actors – 2017 annual report], page 21, FOI-R--4583--SE, December 2017.

[57] News Desk, Ecstasy in champagne warning in Europe expanded; one dead, Food Safety News, 8 June 2022.

[58] Anonymous, Four hurt by MDMA laced champagne in Netherlands; One killed in Germany, NL Times, 25 February 2022.

university in Darmstadt. Some of them had severe symptoms of intoxication and blueish discoloration of the extremities and needed to be taken to hospital. One student was initially in a life-threatening condition. Chemical analysis of blood and urine confirmed the presence of traces of a harmful substance in samples from six of the individuals. At the time, the building where the poisoning occurred was evacuated and cordoned off. An extensive investigation identified the female suspect, who was not considered to be sufficiently responsible, due to her mental state, to be sentenced, but was instead admitted to a psychiatric institution.[59] The poisonous substance used has not been disclosed.

Two Iranians (aged 32 and 25) were arrested in Germany in January 2023 on suspicion of incitement to terrorism. They were suspected of planning a jihadist attack using ricin and cyanide. See further, below, under the section on incidents related to biological agents.

Elsewhere in Europe

Poisoning, using spiked drinks and mostly of women, has been occurring in bars and at festivals for a long time. In the cases where a substance has been identified, it has often been some form of sedative drug or medicine. However, the phenomenon of injection by needle (needle-spiking) is, according to media reports, relatively new.

Last year's report described a wave of needle-spiking attacks in Nottingham, UK.[60] As with drink-spiking, the attacks were largely directed at women in nightclubs, bars or pubs. Some victims described a sudden loss of consciousness and upon awakening found needle pricks on their bodies. Only in one case were chemical substances (cocaine and ketamine) identified.

A UK House of Commons report from 2022 notes that the phenomenon was first noticed in the fall of 2021 and that it appears to be unique to the UK. Between September 2021 and January 2022, 1382 cases were reported, according to the same source.[61]

However, it can be noted that the phenomenon of needle-spiking is not really unique to the UK. In 2022, several US media outlets, among others, highlighted syringe attacks in Europe, reporting that hundreds of people across Europe were

[59] News Desk, Student held in relation to German poisoning incident, Food Safety News, 5 April 2022.

[60] Magnus Normark, Anna-Karin Tunemalm, Anna Vesterlund, Per Wikström, Daniel Wiktelius, CBRN threats and incidents involving non-state actors – 2021 annual report, page 21, FOI-R—5331—SE, July 2022.

[61] Committee Report, Spiking – Ninth report of session 2021–22. House of Commons Home Affairs Committee, 26 April 2022.

affected.[62, 63] The victims were, again, almost exclusively women and they had usually been injected at a festival, or in a nightclub or pub environment. French police reported more than 300 attacks in one quarter, spread over at least eight different cities. The victims usually had visible puncture marks after the injections and bruising was not uncommon. They often reported dizziness and occasionally also lost consciousness. However, none of the French victims reported any form of sexual abuse.

In two of the cases in France, the victims had tested positive for the drug GHB,[64] although it is unclear whether the substance was actually used in the injection attacks or whether the victims had ingested the drug in some other way. It should be noted that it is generally difficult to find reliable open-source information on the substances used. French doctors have also expressed concerns that the victims may have been deliberately infected with diseases such as HIV or hepatitis, or suffered infections from contaminated needles. However, no such case has come to our attention.

Another type of spiking that has been reported, although much less frequently than contamination of drinks, or by injection, is "vape spiking." In a 2021 case in the UK, a woman lent her e-cigarette to a man who disappeared with it out of her sight for a while before returning it. When the woman later used the e-cigarette, she suffered nausea before going into a state of complete paralysis. Friends of the woman called an ambulance and she spent eight hours in hospital before recovering. [65]

As a preventive measure, local police in the United States have warned against sharing e-cigarettes with strangers, due to the risk of being drugged.[66]

USA

In August, a 42-year-old woman from Indiana was sentenced to over 100 years in prison for charges including murder and attempted poisoning. The victim was a

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[62] Adela Suliman & Ellen Francis, 'Needle spiking' fears rise in Europe, but crime 'really difficult' to trace, Washington Post, 7 June 2022.

[63] Nicole Fallert, What is needle spiking, what travelers should know: 'You always think it won't happen to you,' USA Today, 4 December 2022.

[64] Gamma-hydroxybutanoic acid, or GHB, is a narcotic drug and medicine originally developed as an anaesthetic. The substance has a very narrow dose/therapeutic range, making it difficult to dose correctly. The substance is used as a recreational drug and is also known as a "rape drug". There is disagreement concerning how widely used GHB is, due to the dosage difficulties.

[65] Jade Biggs, A woman was left paralysed after her vape was spiked on a night out, Cosmopolitan, 31 August 2021.

[66] Bryan Lambert, Barnstable police warn public that spiked vapes may contain date rape drugs, WHDH TV 7News, 16 June 2022.

46-year-old man with whom she had a custody dispute over their two-year-old daughter.[67] The poisoning attempts were made in 2020 and 2021, by spiking the man's food with fentanyl, a synthetic opioid that is a common drug, but which is also sold and used illegally. The woman had paid her 23-year-old daughter and her boyfriend to hire a hitperson to carry out the attempted murder. However, the daughter and boyfriend instead spent the money on drugs, clothes and hotels. Instead of hiring someone for the killing, they bought fentanyl to carry out the murder themselves. Two unsuccessful attempts were made, through spiking oatmeal and miso soup, to poison the victim, but without the anticipated result. On the third attempt, however, the man became unconscious, at which time the 42-year-old woman strangled him with his own tie.

[67] Johnny Magdaleno, Woman found guilty of murder for plot to poison Carmel man's oatmeal, Indianapolis Star, 24 August 2022.

Incidents with biological materials

There have been no large-scale antagonistic attacks with either infectious agents or toxins in 2022. However, there are examples of incidents linked to these types of agents and that we have chosen to highlight here, since they show actor intentions that must be regarded as antagonistic in nature.

Following a tip-off from the FBI, German police arrested two Iranian brothers in the German town of Castrop-Rauxel, in January 2023. The brothers, aged 32 and 25, who had been living in Germany since 2015, were suspected of planning to use cyanide and ricin for an upcoming terrorist attack with an Islamist motive. However, neither cyanide nor ricin was found during searches of the older brother's apartment and two garages linked to the suspects. In 2019, the younger brother had been sentenced to seven years in prison for an attempted murder. Under the influence of alcohol, he had thrown a tree branch at a car that was driving on a highway. The female driver survived the attack, but was injured. As part of his sentence, the 25-year-old was to undergo detoxification treatment and was therefore serving his sentence in a different town at the time of his arrest.[68] Just over a month after his arrest, he remained in custody, while his older brother had been released. At the time of writing, the investigation has not been completed.[69]

A Florida man was charged with and pleaded guilty to planning to murder his ex-partner with ricin. He had ordered materials from Amazon.com and had managed to produce some ricin that he had dissolved in an unknown liquid. He then filled a water gun with the ricin mixture, but he was arrested before he had a chance to use it on his designated victim. The man was sentenced to 10 years in prison.[70]

Threat and powder letter incidents

A threatening letter containing a white powder was addressed to US Congressman Bennie Thompson. The sender, Robert Maverick Vargo, threatened to kill Thompson, his family, President Biden and federal judge Robert D. Mariani. The threat alluded that the powder in the letter was anthrax spores. Thompson is the chairman of the January 6 Committee, which is investigating the January 6 attacks on the Capitol. Vargo received some media attention when he escaped from custody in July. He was subsequently re-arrested

[68] dpa & AFP, Germany: No toxins found in anti-terror garage searches, Deutsche Welle, 9 January 2023.

[69] Johanna Werning, Terrorverdächtiger aus Castrop-Rauxel bleibt auf freiem Fuß – Bruder im Gefängnis [Terror suspect from Castrop-Rauxel remains at large – brother in prison], 24Rhein.de, 28 February 2023.

[70] Mark Boxley, Florida man pleads guilty in plot to kill ex-partner with ricin-laced squirt gun, Spectrum News 13, 10 May 2022.

and the threat and powder letter was sent from prison after this incident.[71, 72] We have not been able to find any information on the actual nature of the powder in the letter.

In April, a person was exposed to a powder in connection with the opening of a postal consignment in the National Police Board building in Kiruna, Sweden.[73] There is no information on whether or not the powder was hazardous to health.

Natural occurrence of potential bioterrorism agents

In one respect, biological materials are quite different from chemical and radiological materials, as natural outbreaks caused by biological agents frequently occur around the world. Thus, those who hold the relevant skills and have the opportunity also have the possibility to obtain infectious agents at the sites of such outbreaks. A malevolent actor in possession of a potent biological agent, with the capability to, for example, cultivate and disseminate the agent, and with a desire to cause harm to other humans, animals, or plants, may potentially be a lethal threat. The following paragraphs provide an overview of some of the natural-disease outbreaks in 2022 that were caused by biological agents regularly cited as potential threats of bioterrorism.

[71] Press Release, Columbia County man indicted for threatening the President, a congressman and a federal judge. U.S. Attorney's Office Middle District of Pennsylvania, 19 October 2022.

[72] Associated Press, Prison escapee accused of sending threatening letter containing powder to Jan. 6 committee chair, NBC News, 20 October 2022.

[73] Hans Sternlund, Marcus Perjus, Person exponerad för pulverbrev i Kiruna – polisbyggnad avspärrad [Person exposed to powder letter in Kiruna – police building cordoned off], SVT Nyheter Norrbotten, 26 April 2022.

The following anthrax outbreaks have occurred in African countries between January 1 and November 13, 2022:[74]

- Kenya: a total of 180 human cases from several regions,
- South Sudan: a total of 131 suspected cases, including five deaths,
- Uganda: a total of 51 suspected cases, including two deaths from two regions (also at least 65 dead animals have been reported),
- Zimbabwe: from several regions, a total of 159 cases, no deaths.

Ebola outbreaks are also recurring in Africa, but do not occur every year.

In 2022, Uganda experienced its largest outbreak of Ebola in a couple of decades. The deadly outbreak lasted nearly four months and caused 55 deaths among 142 confirmed cases.[75]

In Western Africa, the Democratic Republic of Congo also registered a handful of Ebola cases during 2022.[76]

[74] WHO, Weekly bulletin on outbreaks and other emergencies, African region week 46: 7–13 nov 2022, World Health Organization, 14 November 2022.

[75] Abdi Latif Dahir, Uganda's worst Ebola outbreak in two decades is over, W.H.O. declares, New York Times, 11 January 2023.

[76] WHO, Democratic Republic of the Congo Ebola outbreak declared over, Uganda boosts response. World Health Organization, 27 September 2022.

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