CBRN Threats and Incidents Involving Non-state Actors – 2021 Annual Report

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Sammanfattning

Inga kända attentat med CBRN-ämnen som genererat omfattande negativa konsekvenser har skett under 2021. Trots att vi inte sett några sådana attentat under de senaste åren finns det en fortsatt stor oro för att attentat kan inträffa. Drivande faktorer bakom oron kan ofta kopplas till retorik och informationsspridning som förekommer i extremistkretsar samt de potentiella skadeeffekter den typen av attentat kan generera i samhället.

Samhällspåverkan från covid-19-pandemin har dominerat perspektiven på denna typ av hot. Dels utifrån hur insikterna om samhällets sårbarheter kan inspirera våldsbejakande miljöer till handling, dels utifrån hur extremistmiljöer och kriminella aktörer utnyttjat människors rädsla för smitta, behov av stöd och de restriktioner som införts för sina polariserande och illegala syften.

Författarna kan även konstatera att giftiga ämnen fortsatt används i syfte att hota, skrämma och skada andra människor. I de flesta fall, som kommit författarna till kännedom, 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, covid-19

Summary

The aim of this annual report is to present an updated assessment of the threat that non-state actors pose through the use of chemical, biological, radiological, or nuclear (CBRN) agents to create adverse effects on society. The content is based solely on open-source information and includes a selection of incidents that occurred in 2021. The report has been produced by a research group at FOI (Swedish Defence Research Agency), within the framework of a grant from the Swedish Ministry of Defence.

No known CBRN-related terrorist attack has occurred during 2021. However, there is still widespread concern that this type of attack, with its societal consequences, can still occur. Expressions of threats and the issuing of propaganda and instructions for carrying out CBRN attacks continue to be disseminated within violent extremist communities, for the purpose of spreading fear and inspiring sympathisers to take action. Propaganda and the expression of threats during this year have largely been influenced by the ongoing pandemic of COVID-19 and its effects and consequences.

Keywords: non-state actors, terrorism, crime, bioterrorism, poison, CBRN, threat assessment, annual report, COVID-19

Innehållsförteckning

Introduction

This annual report has been 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) agents to create adverse effects on society. This ongoing research is financed by a grant from the Swedish Ministry of Defence. 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 the results that can be communicated to a wider circle of recipients. The present report is the tenth in the series.[1]

This report is intended to reflect the results of our continuous intelligence-monitoring during 2021 and to provide an overall description of the relevant incidents that have occurred.[2] Furthermore, information concerning the likelihood that CBRN substances are being used by non-state actors is provided. The report is based exclusively on open-source information. 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 2012–2020 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 2021.

Perspectives on CBRN threats from non-state actors

The past year was characterised by statements, articles, reports and conferences that in various ways have addressed concerns and fears about CBRN attacks, some of which we highlight below. However, we note that 2021 was similar to the last four years in that no reports of outright terrorist attacks involving these types of agents have come to our attention.

The planning of major sporting events that attract worldwide interest always poses significant security challenges. Qatar is the host nation for the FIFA World Cup championships, to be held 21 November–18 December 2022; as part of its preparedness for the tournament, Qatar has conducted training and exercise activities for various types of security threats. In December 2021, Irish explosives technicians with CBRN protection competence trained Qatar's security forces to deal with complex incidents involving improvised explosive devices connected to containers loaded with hazardous materials. Incidents that involve CBRN-loaded devices require special skills and may for example demand expertise that is specialised in evacuation and in ordnance device disposal operations, since the on-site situation will usually be considerably more complex than it is when dealing with attacks using conventional explosive devices only.

The Islamic State of Iraq and the Levant (Daesh) has been highlighted in previous editions of our annual report, since its waging of war has involved chemical and biological devices. The United Nations team (UNITAD) that investigated the crimes committed by Daesh in Iraq published its sixth report during the year. It highlights, among other things, that the investigative team found new evidence of Daesh's use of both chemical and biological devices against civilians in Iraq during 2014–2016. The findings are based not only on information retrieved from electronic devices left behind by members of the terrorist group, but also on witness statements, photographic material, other types of documentation, and technical evidence from the locations where Daesh was active. In addition, Daesh is reported to have conducted experiments with biological agents on prisoners as part of the terrorist group's ambition to develop biological weapons.[3] In a presentation in December, the UN agency's special adviser, Christian Ritscher, described how Daesh had seized Iraqi manufacturing facilities to gain access to relevant chemicals. It also described how Daesh, as part of its strategic long-term capability development, had "repurposed" Mosul

[3] Karim Asad Ahmad Khan, Sixth report of the special adviser and head of the United Nations investigative team to promote accountability for crimes committed by Da'esh/Islamic State in Iraq and the Levant, UN Security Council, S/2021/419, 3 May 2021.

University's facilities and equipment to support chemical and biological weapons development.

The UNITAD investigation also identified over three thousand possible victims and witnesses of the terrorist organisation's use of chemical weapons, including details of the chemical attack on Taza Khurmatu, on 8 March 2016.

Ritscher further stated that in 2022 UNITAD will present concrete evidence with the aim of prosecuting specific Daesh individuals for their crimes, including the use of chemical weapons.[4] The judicial trails related to Daesh's use of chemical weapons in Iraq are important for bringing the perpetrators to justice. Along with current ongoing work to identify state perpetrators behind the recent use of these illegal weapons in both Syria and Europe, the process should also be seen as part of future efforts to strengthen international standards against this type of crime.

During a February visit to the British Defence Science and Technology Laboratory at Porton Down, UK Defence Secretary Ben Wallace expressed concern that the risk of attacks with chemical and biological agents is increasing worldwide. The Minister took as an example the state-initiated chemical weapons attacks that have taken place in Europe in recent years, but also pointed to the fact that sources on the internet can act as enablers for both extremists and state actors who have an interest in developing this type of capability for future attacks.[5]

The minister's statement reflects an assessment highlighted in the Cabinet Office's review of UK defence security and foreign policy that was published in March. The report warns that state support for terrorists and state use of proxies for antagonistic purposes will increase and that it is likely that a terrorist group will succeed in carrying out an attack using CBRN materials in Europe before 2030.[6]

Furthermore, the report states that experience from the COVID-19 pandemic shows that the national biosecurity strategy needs to be developed. The current UK strategy was produced as recently as July 2018 and outlines how UK authorities will protect the country and its interests from serious biological threats and risks. The work to revise the strategy includes a survey, asking for perspectives on the main biosecurity challenges the UK may face, lessons

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[4] Christian Ritscher, Briefing by Mr. Christian Ritscher special adviser and head of the United Nations investigative team to promote accountability for crimes committed by Da'esh / Islamic State in Iraq and the Levant, UN, 2 December 2021.

[5] Lydia Catling, Britain is at growing risk of chemical and biological attack due to 'breakdown of world order' as states ignore international rules, Defence Secretary Ben Wallace says, Daily Mail, 9 February 2021.

[6] UK Cabinet Office, Global Britain in a competitive age: the integrated review of security, defence, development and foreign policy, Cabinet Office Policy Paper, 2 July 2021.

learned from the handling of COVID-19, and improvements needed to meet future challenges. The responses obtained in the survey will be processed during 2022.[7]

The UK MoD further states that the use of CBRN weapons poses a long-term and growing threat to the UK and that defence must therefore provide capabilities to maintain room for political and military manoeuvre in such situations. These capabilities must be tailored to support the preparedness and resilience of UK society, as well as being transferable to providing support to international operations, e.g., enhancing NATO preparedness.[8]

In light of the absence of CBRN incidents with serious consequences, a relatively common theme for forum discussions and papers published in 2021 has been the consequences of the COVID-19 pandemic.

The likelihood and risk of bioterrorism events was the focus of a virtual conference organised in March by a UK insurance company that manages risks associated with terrorist events. Speakers included former UK Defence Secretary Des Brown and the Head of the UN counterterrorism unit, Vladimir Voronkov, from Russia. During the conference, the perspective of a real threat from terrorist use of biological agents for future attacks was raised. Like many other recent assessments and publications, this conference also made the link to the effects of the COVID-19 pandemic. The prevailing view is that the pandemic's clear impact on society may contribute to inspiring terrorists to use the spread of infection to cause negative consequences.[9] A further effect of the pandemic is the very tangible development of capacities, particularly in Western countries, to deal with the spread of infection; this in turn has also led to the development of counter-capacities to deal with the possibility of their being spread deliberately.

Europol, in its annual Terrorism Situation and Trend Report for 2021, notes that although few terrorism-related incidents involving CBRN agents occur, extremist environments are showing an interest in this capability. This is particularly true for information dissemination regarding the spread of infection as a possible weapon, in light of COVID-19 pandemic effects.[10] However, examples of

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[7] UK Cabinet Office, Biological security strategy call for evidence: response form, downloaded 28 February 2022. https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fassets.publishing.service.gov.uk%2Fgovernment%2Fuploads%2Fsystem%2Fuploads%2Fconsultation_response_form_data%2Ffile%2F940%2Fbss-call-for-evidence-response-form.docx&wdOrigin=BROWSELINK

[8] UK Ministry of Defence, Defence in a competitive age, Secretary of State for Defence, CP411, March 2021.

[9] BioTerrorism Livestream Conference "Bioterrorism: thinking the unthinkable", Pool Re Solutions, 24-25 March 2021.

[10] Europol, European Union terrorism situation and trend report, Publications Office of the European Union, Luxembourg, June 2021.

approaches to spread a virus with the aim of infecting other people highlight that the actual understanding of biological agents, and thus operational capability, usually is low among those who are active on these platforms. An example of this is the letters sent to Canadian senators in May 2020; the letters contained a message saying that the letter paper itself had been contaminated with saliva from a person ill with COVID-19.[11] The effects of known cases have not resulted in any direct spread of infection but may have caused concern and fear among those directly affected.

In December, the UN Interregional Crime and Justice Research Institute (UNICRI) published additional perspectives on how the effects of the pandemic have exposed societal vulnerabilities to CBRN-related events and how this has been exploited by criminal actors. In addition to the use of social media by activists and extremists to spread conspiracy theories and misinformation not only about the virus, the disease it causes, and the measures taken by authorities to prevent its spread, there is an additional dimension to the activities of criminal actors. A number of actors, some with links to Daesh, have established illegal businesses to supply counterfeit materials, including vaccines, protective gear, and other equipment that the management of the pandemic has created a need for. These activities have contributed to a situation where health institutions have been paying for substandard equipment while unwittingly helping to fund extremist activities. The illegal marketing and sale of fake COVID-19 vaccines is well documented.[12]

In conclusion, concerns that the pandemic and its consequences will lead to an increased risk of future bioterrorist incidents have been raised by both representatives of government security services and international researchers. It is clear that the pandemic has generated considerable interest in extremist circles, visible both in terms of rhetoric and information dissemination. However, neither preparatory operations, nor the number of attacks carried out, have been affected to any significant extent. The perception that terrorists and extremists have an interest in, and to some extent a fascination with, the spreading infection as a method for creating fear and chaos in society may have been reinforced by the way the pandemic has proved to be victimising, polarising communities, and generating significant media coverage. However, it is clear that the operational capability to effectively use pathogens is largely lacking, at least for the time being, among those terrorists who have attempted to carry out operational attacks this year.

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[11] Sun Media, Senators threatened with COVID-19 through the mail, Toronto Sun, 15 June 2020.

[12] Francesco Marelli & R Alexander Hamilton, Attempts by non-state actors to disrupt COVID-19 vaccination efforts, deliberately transmit the virus and profit from the sale of counterfeit vaccines, therapeutics and equipment, Freedom From Fear Magazine, UNICRI, December 2021.

Threats, rhetoric and information dissemination

The dissemination of information aimed at inspiring attacks with poisonous and infectious agents is a regular feature of radical environments. Examples of discussions and propaganda referring to CBRN materials in recent years can be found in all extremist circles and are an indication of their continuing interest in pursuing these types of attacks.

Information channels that can be linked to jihadist actors have issued calls during the year to carry out biological attacks against symbolic targets, not infrequently directed against the United States. A general call to carry out attacks, using anthrax spores,[13] in the United States, with the aim of spreading widespread fear and paralysing society, was made in May 2021. In addition, calls to attack McDonald's restaurants by contaminating their food and drinks appeared in early 2022.[14,15]

These types of calls and discussions also occur on Darknet, the part of the internet that requires special software to access and offers a high degree of anonymity. For example, individuals in Finland, with links to right-wing extremism, have discussed food poisoning as a method to poison immigrants.[16]

None of the concrete examples of incitement and discussion of CBRN-related attacks that were identified by our team of experts during 2021 have included any operationally useful information that could support someone intent on carrying out an attack. However, educationally-oriented information dissemination does exist within Daesh-linked encrypted channels on platforms such as Telegram and Conversations. But this type of information is largely focused on the construction of explosives and improvised explosive devices. A young Norwegian, who was sentenced to prison for preparing an attack during 2021, had gained knowledge from this type of source (this example is further discussed in the chapter on chemical-related incidents, below).

[13] Anthrax is a serious infectious disease caused by the spore-forming bacteria, *Bacillus anthracis*.

[14] Section on Bioterrorism and Public Health, Anthrax attack, scare to "bleed out" US incited by jihadist, Site Intelligence Group, 6 May 2021.

[15] Section on Bioterrorism and Public Health, Anthrax bioweapon attacks, McDonald's food contamination urged in US, Site Intelligence Group, 14 February 2022.

[16] Section on Bioterrorism and Public Health, Dark web forum encourages poisoning immigrants in Finland through food contamination, Site Intelligence Group, 4 February 2022.

Incidents with nuclear and other radioactive materials

Since 2012, when this series of FOI reports was initiated, we have sought to highlight events that stand out from the normal reporting on nuclear and other radioactive materials. Over the years, we have reported on incidents involving radioactive materials and linked to threats, terrorism, assassinations, high-profile thefts and robberies, and spectacular attempts to sell radioactive materials, as well as security incidents at nuclear facilities. This year's compilation does not deviate significantly from the established pattern, and it can be concluded that none of the reported incidents are of such magnitude as to pose a threat to international security.

All information on the various incidents reported in this chapter comes from open sources and, to some extent, from the IAEA's Incident and Trafficking Database (ITDB). ITDB receives voluntary reports from its member states on incidents involving nuclear and other radioactive materials that have been handled in violation of national regulations. In 2021, 126 incidents were reported to ITDB, with 79 of the reports coming from states in Europe.

Sweden

In July, police carried out searches and seized several items at a number of premises in the county of Värmland. The police acted on a tip to the Swedish Radiation Safety Authority and, following a period of reconnaissance work, raided places of interest. A man in his 20s was later arrested and is both suspected of having violated the Radiation Protection Act and reasonably suspected of having caused danger to another person, as radioactive substances and X-ray equipment were stored at the man's home address, in an apartment building.[17] According to early information, the suspected individual is a person with a special interest in radiation, but without any links to extremist circles or criminality.

Germany

An explosives expert in the German Armed Forces is suspected of, among other things, unlawful handling of radioactive material.[18] German authorities became aware of the man when he tried to send a World War II-type of silencer for machine guns to the US. This prompted a police search of his home in North

[17] Dahlia Poignant Khafagi, Man i 20-årsåldern anhållen misstänkt för brott mot strålskyddslagen [Man in his 20s arrested on suspicion of violating the Radiation Protection Act], SVT Nyheter, 2021-07-15.

[18] Anonymous, German officer kept radioactive material, secret documents in weapons cache, Deutsche Welle, 2021-10-22.

Rhine-Westphalia, in October. During the search, in addition to loads of illegal automatic weapons and grenades, radioactive materials in the form of strontium-90, thorium and americium, as well as the toxic substance, potassium cyanide, were found.[19] According to Der Spiegel, the weapons and radioactive material that were found did not originate from the German Armed Forces, but from the former Eastern Bloc. Police also found sensitive documents on the situation in North Korea that originated from the German intelligence service, BND (Bundesnachrichtendienst), as well as pro-communist literature. At the time of his arrest, it was not known how he had obtained the illegal material found in his home.

Around the same time as the previous incident, similar seizures of radioactive material were made in Braunschweig, Lower Saxony. In this case, police became interested in a 43-year-old man who had threatened to kill his boss after being dismissed from the workplace of Eckert & Ziegler, a producer of commercial radiation sources.[20] A search of the man's home revealed a laboratory with equipment and chemicals, including two nickel-63 sources and a plutonium source. The nickel-63 sources were identified as two calibration sources that had gone missing, in 2007, from the man's former employer at the same site. The plutonium source is also suspected to have come from the previous employer, although it had never been reported as missing.

France

A 26-year-old man, from Rouffach, in northeastern France, boasted at the training centre he attended that he had made bombs and even shown films about this. The police were therefore contacted and, during a search of the man's home, found four explosive devices containing uranium, three of which were ready for use.[21] The police also found other unspecified radioactive items. The uranium, which is believed to be of natural composition and therefore not useful in a nuclear device, was reportedly purchased on eBay. In addition, police also discovered Ku Klux Klan hoods and Nazi paraphernalia. The 26-year-old has stated that he planned to detonate the explosives in a field. The man, now suspected of manufacturing explosive devices, is not previously known to police and is said to suffer from a mental disorder.

India

[19] Anonymous, Zyankali bei Bundeswehroffizier gefunden [Potassium cyanide found at Bundeswehr officer], Der Spiegel, 2021-11-19.

[20] Anonymous, Nach Morddrohung: Polizei findet radioaktive Stoffe [After death threat: police find radioactive material], NDR, 2021-10-30.

[21] AFP, Haut-Rhin : des bombes artisanales, de l'uranium et des croix gammées découvertes, un suspect mis en examen [Haut-Rhin: homemade bombs, uranium and swastikas discovered, a suspect under investigation], Liberation, 2021-09-08.

Several incidents involving products claimed to be uranium and offered for sale on the black market have occurred in India this year.

In February, two people were arrested in the state of Maharashtra on suspicion of trying to sell uranium to a member of an anti-terrorist squad, who was acting as a prospective buyer. Over seven kilograms of naturally occurring uranium were seized.[22] The material is assumed to have been found at a scrap yard, where one of the two arrested persons worked. The incident prompted the Pakistan Foreign Office to react and accuse India of failing to control nuclear materials.[23]

In another incident in February, four men were arrested for attempting to sell uranium in the city of Indore. The men were seeking to sell two grams of uranium to, unknown to them, a policeman, and the material was seized. This case also turned out to be attempted fraud.[24]

In June, seven persons were arrested for attempting to sell 6.4 kg of uranium in Jharkand, in northeast India. Also in this case, it turned out that the material was not uranium and not even radioactive.[25]

Nepal

In Nepal, an event similar to those in neighbouring India took place. In this case, four people were arrested for trying to sell 2.5 kg of what appears to be natural uranium. One of those arrested, a woman, claimed that the uranium belonged to her father-in-law, who had worked in a uranium mine in India and had brought the material home 20 years ago. After she had discovered that the material could be valuable, an attempt to sell it was made. Police claimed that this was the first time someone had been arrested in Nepal for trying to sell uranium.[26]

USA

In April, a man in Phoenix, Arizona, was sentenced to 15 years in prison, followed by 12 years of supervised release, for attempted use of a weapon of mass destruction.[27] In 2019, the man had entered a gas station and stabbed the station clerk with a knife, then driven to his own workplace and picked up three iridium-192 radiation sources. The plan was apparently to drive to a local mall

[22] Mateen Hafeez, Maharashtra uranium seizure: NIA collects information from ATS, The Times of India, 2021-05-07.

[23] Anonymous, Pakistan seeks probe into seizure of radioactive uranium in India, TRTWorld, 2021-05-08.

[24] TNN, Four held in Indore for trying to sell ”uranium”, The Times of India, 2021-02-24.

[25] Abhishek Angad, Jharkhand: 6 kg mineral uranium seized, 7 arrested, The Indian Express, 2021-06-04.

[26] Shuvam Dhungana, Four people arrested for possessing 2.5 kg of what police say is radioactive material, The Kathmandu Post, 2021-03-12.

[27] U.S. Attorney’s Office (District of Arizona), Phoenix Man Sentenced to 15 Years for Planning to Release Stolen Radiological Materials in Scottsdale and Payson, United States Department of Justice, 2021-03-04.

and have a “last stand" by opening the radiation sources in the mall. Instead of doing so, the man went to a nearby mountain area and opened one of the radiation sources. According to the reports, he intended to commit suicide, but changed his mind and went home and barricaded himself in his apartment. After a few hours of negotiation with the police, he surrendered. The radiation sources were later safely recovered from his vehicle.

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 remains true for the current year and the nine previous years we have produced our annual report.

In the past year, no severe attacks with toxic chemical agents that involved non-state actors have been reported. Possibly the most serious case occurred in Norway, where a young Daesh sympathiser intended to carry out, and made preparations for, terrorist attacks. We have also identified several other incidents and phenomena related to toxic chemicals, which in the context of this annual report seem relevant to highlight.

Sweden

In May, an attempted sabotage, or deliberate poisoning, occurred at Örnsköldsvik Hospital. Someone had added a chemical to a meal drink that was served from a large container in the hospital restaurant. The incident did not cause any injuries, as diners quickly noticed that the drink had an unusual taste and raised the alarm. Chemical analysis of the drink revealed a strong alkaline detergent. The poison-laden drink was considered potentially harmful if drunk in large quantities.[28]

A dead man was found at Sundbyberg cemetery in March. Suspicions that a crime had been committed were raised and the investigation was able to identify two suspects. In November, a district court convicted both suspects of first sedating the man with sleeping pills, then strangling him and dumping his body in the cemetery. The victim had voluntarily visited the convicted men in the belief that he could resolve an honour-related conflict. According to the prosecution, he had been given food, poisoned with mirtazapine and zolpidem, drugs normally used for depression and insomnia, which made him drowsy, to facilitate the subsequent strangulation. The drugs were detected in the body of the victim, and the same drugs were also found at the home of one of the convicted men.[29] The Court of Appeal later upheld the conviction.[30]

[28] Marcus Lindström, ”Giftdrycken” på sjukhuset i Örnsköldsvik analyserad – innehöll rengöringsmedel ["Poisonous drink" at the hospital in Örnsköldsvik analysed - contained detergent], SVT Nyheter, 2021-10-07.

[29] Gusten Holm, Man drogad, strypt och dumpad på kyrkogård [Man drugged, strangled and dumped in cemetery], Expressen, 2021-09-18.

[30] Adam Koskelainen, Förgiftade och dödade man – för hedersmotiv [Poisoned and killed man - for honour-based motive], Expressen, 2022-02-07.

Norway

In Norway, in 2021, a 16-year-old Syrian-born boy was sentenced to five years in prison for attempted terrorist crimes and association with the Daesh terrorist movement. According to the prosecutor, the 16-year-old had sought information on and made preparations to manufacture explosives. He also had a limited amount of the highly toxic substance, nicotine, in a bottle. The bulk of the evidence concerns information gathered by the accused, and his own activities in internet forums.[31]

The Norwegian Police Security Service (PST), which had received information from a foreign security service, had been monitoring the youth for some time and deemed it likely that he had concrete plans to perform a terrorist attack in Norway and that, at the time of his arrest, was preparing to carry it out. The youth had held discussions in Daesh environments on encrypted digital platforms, such as Conversations and Telegram, where he is said to have played an active role, discussing when and where a terrorist attack could be carried out. He also allegedly created his own Daesh propaganda videos, which he posted on anonymous Twitter accounts.

It is claimed that his plans included testing of the nicotine solution, which he had produced in the vicinity of his home, on individuals. If the poisonous solution proved to produce the desired effect, the main target would then be "infidels". According to the chemical analysis carried out by the University Hospital in Oslo, the seized solution was said to contain 51 mg of nicotine per ml of solution.[32]

A possible date for the main attack was Norway's National Day (May 17th). In his discussions about his attack plans, he mentioned shops and shopping centres as possible targets, with poisoning of drinking water as a possible method. The suspect's phone and tablet contained various bomb manuals and, among other things, information on nicotine and cyanide. He had also searched for addresses of nightclubs and other entertainment venues in Norway. Furthermore, he is said to have acquired knowledge by participating in an online training activity on how to make improvised explosives. He also possessed a document for small terrorist cells on the tactical, operational, and practical details of training to kidnap opponents, as well as guidance on various execution methods.

We have not found any information concerning the use of nicotine in terrorist attacks. However, a case of intentional poisoning took place in the US in 2003, when minced meat in a supermarket was deliberately poisoned with a now

[31] Christina Quist & Henrik Røyne, 16-åring dømt til fem års fengsel for terrorvirksomhet - tre år betinget [16-year-old sentenced to five years in prison for terrorism - three years suspended], VG, 2021-06-29.

[32] LD_{50} (a dose that is lethal for 50% of those poisoned) for pure nicotine by ingestion in rats is 50 mg per kg body weight and 70.4 mg per kg body weight by skin uptake in rabbits.

banned pesticide containing high levels of nicotine. Some ninety people suffered mild to severe symptoms of poisoning.[33]

Nicotine is one of the poisonous substances that have been discussed on jihadist internet forums.[34] References to nicotine have appeared in terrorist documentation, for example from Afghanistan, dating back to the late 1990s. Published terrorist manuals include descriptions of how nicotine can be extracted from tobacco.[35]

USA

In a data breach at a drinking water facility in Oldsmar, Florida, hackers managed to take remote control of process equipment in an attempt to taint the water with lye (sodium hydroxide). Lye is used to control the pH of drinking water and is added in precise amounts during normal operations. Using TeamViewer, a computer program that can be used for remote technical assistance operations, the hackers managed to assume control of the dosage of lye and cause an excessive addition to the drinking water. As an employee detected the intrusion immediately, the addition of lye was quickly limited and later deemed harmless. Larger amounts of lye in drinking water can be harmful. However, technical solutions had reportedly been installed in the waterworks to limit the possibility of adding large quantities of lye, with it being relatively easy to shut down the distribution network.[36] A similar type of incident, using the same approach and without any serious consequences, had previously been reported from a waterworks near San Francisco.[37]

Among the many indictments and investigations that followed the attack on the Capitol Building in Washington, D.C. on 6 January is a case in which two men stand accused of assaulting police officers with chemicals. The indictment is largely based on CCTV footage, in which the suspects are seen handling what look like spray cans, approaching the officers and spraying their faces. The officers react by trying to protect themselves with their hands and retreating. Analysis of the footage suggests the use of some kind of pepper spray, or tear

[33] M Boulton, M Stanbury, D Wade, J Tilden, D Bryan, J Payne & B Eisenga, Nicotine poisoning after ingestion of contaminated ground beef --- Michigan, 2003, Morbidity and Mortality Weekly Report, Centers for Disease Control and Prevention, USA, 2003-05-09.

[34] Normark et.al, CBRN-hot från ickestatliga aktörer – Årsrapport 2015, FOI R 4192, December 2015, page 21.

[35] David Harber, Assorted nasties, Desert Publication, El Dorado, USA, 1993.

[36] Christofer Bing, Hackers try to contaminate Florida town's water supply through computer breach, Reuters, 2021-02-08.

[37] Duncan Riley, Hacker allegedly tried to poison San Francisco Bay Area water supply, SiliconANGLE Media, 2021-05-20.

gas, which is legal to obtain, possess and use for self-defence purposes in many places in the United States, including Washington, D.C.[38]

A 46-year-old man was sentenced in April 2021 to 12 years in prison for illegally attempting to obtain the toxic chemical, dimethylmercury, on Darknet, in 2018, with the intent to poison his former girlfriend.[39] US authorities discovered the attempt, and set a trap by letting someone act as a vendor and send a shipment with a harmless substance. The package was later found in the man's home, along with unopened packages containing ten grams of cadmium arsenide, 100 grams of cadmium metal, and half a litre of hydrochloric acid that he had purchased a few months earlier. It is not clear how the man had intended to use the substances as a poison, but he revealed that he had become aware of the toxicity of dimethylmercury after reading an article about a fatal poisoning accident. Presumably, this refers to a scientist who accidentally spilled a few drops of the substance on her latex glove in 1996 and died ten months later.[40]

A 70-year-old man admitted that in December 2019 he had sent tainted Christmas letters to some of his former colleagues at their workplace. The letters contained the insecticide, Carbaryl (1-naphthyl methyl carbamate). In the letters, the man had threatened that they contained anthrax bacteria by using greeting phrases such as "Merry Anthrax (obscenity)! Eat (obscenity) and die more to come". Some of the former colleagues were exposed to the insecticide, a white powder, and had to undergo extensive decontamination by the emergency services and were treated with antibiotics, as it was feared that they had been exposed to *Bacillus anthracis*, the anthrax bacterium. Threatening letters with the same insecticide were again sent to the same persons in February 2020. A search of the man's home was initiated, after his handwriting had been identified on a job application; the search found various types of evidence and also some well-known underground manuals, such as: *The Poisoner's Handbook*, *The Joy of Cold Revenge*, *U.S. Army Guide to Boobytraps*, and *Silent Death*. He was indicted in early 2021, and faced up to 10 years in prison, but he was later sentenced to 180 days of house arrest and five years of probation.[41]

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[38] Katie Benner & Adam Goldman, Two are charged with assault on officer who died after Capitol riot, New York Times, 2021-03-24.

[39] Brittany Shammas & Meryl Kornfield, Man, bitter at women, tried to buy chemical weapon with bitcoin, prosecutors allege, Washington Post, 2021-04-07.

[40] Suzanne Raga, Karen Wetterhahn, the chemist whose poisoning death changed safety standards, Mental Floss, 2017-05-31.

[41] U.S. Attorney's Office (District of Oregon), Klamath Falls man pleads guilty for sending threatening cards containing white powder to former coworkers, United States Department of Justice, 2021-02-08.

United Kingdom

A wave of needle spiking attacks occurred in Nottingham this year. In just over two months, more than 140 incidents, where victims experienced being jabbed with needles, were reported. Most incidents occurred in nightclubs, while predominantly young women were targeted. The high number of incidents led to an increase in police resources in vulnerable areas and the setting up of a hotline for concerned citizens.[42] Prohibited substances – cocaine and ketamine – were detected in only one of the cases. Some of the victims described experiencing a sudden loss of consciousness and waking up to find pin pricks on their bodies. Several suspects have been arrested but none have been charged.[43]

Attacks with corrosive substances, often various forms of highly corrosive acids, either thrown or sprayed at an individual, occur annually around the world. Acid attacks on women, most frequently in Southeast Asia, receive particular attention.[44] The UK is also badly affected by this type of attack; the appearance of this practice in gang-related violence between men increased sharply between 2012–2017.[45] One such incident involved a 26-year-old man, in Scotland, who died from 90% acid burns all over his body, after assumedly being forced into a bathtub filled with corrosive liquid. The young man was believed to have fallen victim to an act of revenge after a drug theft.[46]

Germany

Seven cases of serious chemical poisoning occurred in August at the Technical University of Darmstadt. The victims had drunk water and eaten food that, after investigation, was found to contain toxic substances that could only have been added deliberately. All victims had to be taken to hospital and one person was in critical condition. The incident was considered very serious, since the police staffed the case with 50 investigators. As the investigation is still ongoing, no details of suspects, motives, or the chemical used have been made public.[47]

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[42] BBC East Midlands, Calls for nightclub searches after Nottingham needle spiking reports, BBC News, 2021-10-29.

[43] Peter Hennessy, Police statement after 146 reports of 'needle spiking' in Nottingham, Nottinghamshire Live, 2021-12-17.

[44] Acid Survivors Trust International, A world wide problem. http://www.asti.org.uk/a-worldwide-problem.html

[45] Statista Research Department, Number of violent corrosive fluid offences recorded by the London Metropolitan Police from 2002 to 2019, 2022-03-16. https://www.statista.com/statistics/888324/acid-attacks-in-london/

[46] Jon Hebditch, Man 'forced into bath of corrosive substance' in alleged revenge attack in Clydebank, Daily Record, 2021-06-11.

[47] Julian Moering & Danijel Majic, Mordermittlungen nach Giftanschlag an TU Darmstadt [Murder investigation after poison attack at TU Darmstadt], hessenschau.de, 2021-08-24.

Japan

The perpetrator of a sulphuric acid attack at a Tokyo subway station in August managed to escape after carrying out an attack that left a woman and a man injured. A suspect was later traced to Okinawa and arrested for the crime. The male victim and the perpetrator were superficially acquainted but the motive remains unclear.[48]

Attacks with acids have occurred in the past in Japan, mainly targeting women.

Australia

Australia experienced an incident involving a substance similar to pepper spray that was dispersed in the form of an aerosol by a man in a shopping centre in Brisbane. Six victims suffered from breathing difficulties and required hospital treatment. No detailed information on the dispersal was made available or whether the product in use was commercially available.[49]

[48] Kyodo News, Suspect in Tokyo acid attack arrested in Okinawa, The Japan Times, 2021-08-29.

[49] Darren Cartwright, Man charged after using 'pepper spray' inside a shopping centre south of Brisbane, news.com.au, 2021-06-25.

Incidents with biological materials

There have been no large-scale antagonistic attacks with either infectious agents or toxins in 2021. However, there are examples of incidents linked to these types of agents that we have chosen to highlight here and that indicate actor intentions that must be regarded as antagonistic in nature.

Sergeant L.J. Lindor, a former criminal investigator in the US Army, was sentenced in December 2021 to a 70-year prison term after killing his wife with tetrodotoxin in 2018. He allegedly purchased this toxin during a trip to Haiti. The toxin, which causes respiratory paralysis, is found naturally in, for example, certain aquatic salamanders and blowfish.[50]

In August, a man was arrested for injecting his own blood into food products in three different supermarkets in London. A total of 21 syringes were found in the shops where he had committed the crimes. Half a million pounds worth of food was reportedly thrown away as a result of the man's actions. The man denies any wrongdoing and his defence lawyer claims that the man was acting under a psychotic state.[51]

Police and emergency services evacuated a student corridor at Creighton University, in Omaha, Nebraska, after it emerged that a 20-year-old female student had attempted to produce ricin. She stated to emergency room staff that she wanted to harm herself.[52]

We have not managed to establish whether the woman was later arrested for her actions.

In November, 15 test tubes labelled smallpox and vaccinia were discovered in a freezer at a Pennsylvania laboratory. *Vaccinia* is the virus used in the production of smallpox vaccine. Since the virus was declared extinct in 1980, smallpox viruses can only be stored in two sites in the world: the US Centers for Disease Control and Prevention (CDC) in Atlanta, USA, and the Vector Institute, in Koltsovo, Russia. After analysis, the CDC reported that the tubes did not contain smallpox virus.[53]

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[50] Max Hauptman, Army staff sergeant convicted of killing wife with toxin from puffer fish. Task & Purpose. 2021-12-30.

[51] Jamie Phillips, Revolting moment solicitor, 37, injected food with his own blood as he strolled through a west London Sainsbury's Local - in a rampage which cost £500,000, Mail Online, 2022-02-22.

[52] Associated Press, Creighton dorm evacuated after student tries to make ricin, US News, 2021-01-15.

[53] Johnny Diaz, C.D.C says 'smallpox' vials found in lab did not contain disease-causing virus, New York Times, 2021-11-18.

During the COVID-19 pandemic, incidents in which persons have tried to deliberately infect other humans in their vicinity by spitting and coughing at them have sporadically occurred. A Spanish man was arrested in April for, apparently, intentionally infecting 22 persons (colleagues, gym-goers, and family members). None of those infected seem to have suffered any serious symptoms.[54] A New Zealand man who claimed to have COVID-19 was arrested after coughing at a police officer. The man had previously been arrested for spitting at a police officer.[55] A Swedish woman was charged at Östersund District Court with attempting to infect a psychiatric ward employee with COVID-19 by spitting in her face.[56]

Incidents with threat and powder letters

In November, police were called to the town hall in Upplands-Bro, Sweden, where an opened powder letter had resulted in the evacuation of one of the floors. Three people were hospitalised due to mild symptoms of nausea and dizziness. Analyses showed that the powder was harmless.[57]

A parcel containing powder caused an alarm at a company in Frösön, in October.[58] Subsequent analyses at the Swedish National Forensic Centre showed that it did not contain any substance harmful to health.[59] We have previously reported similar incidents in Frösön.[60]

Media reported that Tunisia's president, Kais Saied, had received a ricin letter, in January. It was reportedly opened by the Chief of Staff, who exhibited certain symptoms and sought hospital care.[61] A Tunisian prosecutor later denied that the

[54] Anonymous, Covid: Man arrested after infecting 22 people in Majorca, BBC News, 2021-04-24.

[55] Craig Kapitan, Covid 19 coronavirus Delta outbreak: Lockdown spitter arrested again, for coughing, NZ Herald, 2021-08-23.

[56] Maria Harning, Kvinna åtalas för att ha försökt sprida covid-19 [Woman charged with attempting to spread COVID-19], SVT Nyheter Jämtland, 2021-02-25.

[57] TT, Pulverbrev i kommunhus var ofarligt [Powder letter in town hall was harmless], Aftonbladet, 2021-11-16.

[58] Maria Harning & Jonas Lindsköld, Stor utryckning till Frösön – brev med okänt pulver hos företag [Large emergency at Frösön - letter with unknown powder at company], SVT Nyheter Jämtland, 2021-10-14.

[59] Maria Harning, Analys av misstänkt pulver på Frösön klar – inget farligt [Analysis of suspected powder in Frösön completed - nothing dangerous], SVT Nyheter Jämtland, 2021-11-08.

[60] Magnus Normark, Anders Lindblad, Björn Sandström, Ann-Karin Tunemalm, Daniel Wiktelius, Anna Vesterlund, Per Wikström, CBRN threats and incidents involving non-state actors – 2019 annual report 2019, FOI-R—4979—SE, June 2020.

[61] Tarek Amara, Tunisian president's office gets letter with suspicious powder: source, Reuters, 2021-01-27.

letter contained anything dangerous to health.[62] Several months later, however, representatives of the Tunisian Ministry of Justice accused the Islamic political party, Ennahda, of attempting to assassinate the President.[63,64] No definite information as to whether the letter actually contained ricin, or any other dangerous substance, is currently available.

An American man who was arrested in 2019 and then confessed to having sent hoax letters containing white powder to several authorities, including several district court offices, received his sentence in early 2021. He is to spend at least two years in prison. Forensic analysis showed the powder to be harmless.[65]

Natural occurrence of potential bioterrorism agents

Biological agents are, in one respect, quite different from chemical and radiological agents, as natural outbreaks caused by these agents are continually occurring around the world. Thus, those who hold the relevant skills and have the opportunity also have the possibility to obtain infectious agents from these outbreaks A malevolent actor in possession of a potent biological agent, with the capability of, for example, cultivating and disseminating 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 2021 that were caused by biological agents commonly cited as potential bioterrorist threats.

In recent years, recurrent Ebola outbreaks have affected several regions of Congo-Kinshasa, leaving thousands sick and dead.[66,67] In 2021, the province of North Kivu had a minor outbreak resulting in 11 cases, including six deaths. The reason this outbreak was more limited is attributed to a vaccination campaign that was initiated and implemented in the province immediately after the first case of infection had been identified.[68]

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[62] Anonymous, Tunisia prosecutor says no poison in suspect letter to president, The Arab Weekly, 2021-01-31.

[63] Anonymous, Tunisia: President accuses unnamed parties for plotting his removal & assassination, The North Africa Post, 2021-06-16.

[64] Alba Sanz, Investigations into assassination attempt on Tunisian president point to Ennahda party, Atalayar, 2021-06-17.

[65] U.S. Attorney's Office (Northern District of New York), Dutchess County man sentenced for mailing white powder to Federal offices throughout New York, United States Department of Justice, 2021-03-15.

[66] World Health Organization, Ebola Dashboard DRC, 2020-10-01.

[67] MSF (Doctors Without Borders), Eleventh outbreak declared over in Équateur province, 2020-11-03.

[68] World Health Organization, Democratic Republic of the Congo declares Ebola outbreak over, 2021-12-16.

Guinea was again hit, for the first time since the major outbreak of 2014–16, by a small Ebola outbreak in the first half of 2021. In all, 23 people were infected, 12 of whom died.[69] One infected person had travelled from Guinea to Côte d'Ivoire, where she fell ill and was treated in hospital. Infection tracking was initiated, as there was a well-founded concern that she might have infected additional persons during her trip. However, this did not appear to be the case.[70]

Between 20,000 and 100,000 animals, both wild and domestic, are affected by anthrax each year and 1.8 billion people live in the areas where these outbreaks occur.[71] Human cases are relatively rare but usually occur through contact with infected animals or infected meat, mostly in developing countries. In 2021, a larger number of human cases, 212 cases, were reported in Zimbabwe.[72] Cattle are particularly susceptible to anthrax infections, and they often lead to the death of the affected animals.

Outbreaks of plague also occur annually in different parts of the world. Congo-Kinshasa has been affected several times in recent years. In 2021, 117 people fell ill, of whom 13 died.[73] Madagascar has had recurrent outbreaks of plague since the 1990s. In 2021, 38 suspected cases were reported, including six deaths.[74] Isolated cases of plague have also been reported from China[75] and the US,[76] among others.

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[69] ReliefWeb, Ebola outbreak in Guinea declared over, United Nations Office for the Coordination of Humanitarian Affairs, 2021-06-19.

[70] Reuters Staff, Ivory Coast Ebola patient recovers, beginning countdown to end of outbreak, Reuters, 2021-08-25.

[71] CJ Carlson, IT Kracalik, N Ross, KA Alexander, ME Hugh-Jones, M Fegan, BT Elkin, T Epp, TK Shury, W Zhang, M Bagirova, WM Getz & JK Blackburn, The global distribution of *Bacillus anthracis* and associated anthrax risk to humans, livestock and wildlife, Nature Microbiology, 2019 Aug;4(8):1337-1343.

[72] Anonymous, Zimbabwe reports more than 200 anthrax cases in 2021, Outbreak News Today, 2021-12-15.

[73] Anonymous, Plague in Ituri Province, DRC: 'Grave consequences for children', says UNICEF, Outbreak News Today, 2021-08-24.

[74] Anonymous, Pneumonic plague in Madagascar update, more cases confirmed, Outbreak News Today, 2021-09-23.

[75] Anonymous, China: Bubonic plague case reported in Ningxia Hui Autonomous Region, Outbreak News Today, 2021-08-22.

[76] Ben Markus, Plague confirmed in death of Durango child, CPR News, 2021-07-09.

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