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CBRN Threats and Incidents Involving Non-state Actors – 2019 Annual Report

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Sammanfattning

Under 2019 har inga kända terrorattentat skett där CBRN-ämnen använts för att orsaka negativa konsekvenser. Trots detta finns internationellt en fortsatt oro för att denna typ av attentat ska ske. En drivande faktor bakom hotperspektivet har varit det intresse och den retorik som fortsatt att manifesteras bland våldsbejakande aktörer, främst inom den islamistiskt inspirerade extremistmiljön. Daeshs förlorade kontroll över infrastruktur och förluster av ledande personer bakom utveckling och användning av rudimentära kemiska vapen är ett faktum. Inga kända trovärdiga uppgifter om attentat med kemiska ämnen i konfliktområdet i Syrien och Irak har förekommit sedan 2017.

Däremot sprids fortsatt propaganda och information om CBRN-ämnen för antagonistiska syften inom extremistmiljöer som sannolikt syftar till att sprida rädsla men även för att inspirera sympatisörer till att ta egna initiativ. Enstaka händelser visar att denna informationsspridning genererar potentiella säkerhetshot.

Vi kan även konstatera att giftiga ämnen tämligen regelbundet används för att hota, skrämja och skada andra personer även utanför extremistmiljöerna. Ofta görs detta i syfte att skada någon som står i nära relation med attentatspersonen. Hot som anspelar på giftiga och smittsamma ämnen förekommer också typiskt sett i finansiella opportunistiska syften eller för att manifesteras sitt missnöje mot företag, myndigheter eller andra offentliga funktioner och personer.

Nyckelord: ickestatliga aktörer, terrorism, kriminalitet, bioterrorism, 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 2019. 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 attacks have occurred during 2019. However, there is still a widespread concern that this type of attack will occur and about the consequences it may generate in the society. Threats, propaganda, and instructions concerning CBRN attacks are still being disseminated within extremist communities, with the purpose of spreading fear and inspiring sympathisers in the West to commit to the jihadi cause and take action. Sporadic incidents show that this dissemination of information generates potential security threats.

In addition to their loss of infrastructure, Daesh has also lost several leading individuals who enabled the production and use of crude chemical weapons in the conflict areas in Syria and Iraq. No credible information on assaults with chemical materials in the conflict area has come to our attention during the last two years.

Keywords: non-state actors, terrorism, crime, bioterrorism, CBRN, threat assessment, toxic, hazard, annual report

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Introduction

This report is produced annually by an FOI (Swedish Defence Research Agency) research group whose task is to assess the threat from non-state actor's use of chemical, biological, radiological, or nuclear, materials (CBRN) causing adverse effects on the society. This ongoing research is financed by a grant from the Swedish Ministry of Defence. We continuously produce different types of spoken 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 can be communicated to a wider circle of recipients. The present report is the eighth in the series of annual reports on this topic.¹

This report is intended to reflect the results of our continuous intelligence monitoring during 2019 and to provide an overall description of the relevant incidents that have occurred.² Furthermore, information concerning the likelihood that CBRN materials are being used by non-state actors is provided. The report is based solely on open source information. It does not constitute a complete review of all information gathered by the members of our research group. The purpose of the report is to uphold a strategic function by presenting a general summary of assessed, relevant incidents on an annual basis. From this material, deviations and trends can be identified over time.

¹ The 2018 report is available in both English and Swedish from the FOI website, www.foi.se. Reports from 2012-2017 are only available in Swedish.

² When the report mentions a date without stating a year, it refers to an incident that occurred in 2019.

Perspectives on CBRN threats from non-state actors

Since the first issue of this annual report, seven years ago, monitoring the developments in the conflict area in Syria and Iraq has been central for assessments of the threat from the use of CBRN-materials by terrorist groups. It has been within the context of this conflict, and Daesh's activities and capabilities in the conflict area in particular, that the threat from CBRN terrorism has had its nucleus for a number of years. During the beginning of 2019, the last Daesh-controlled areas in Syria were recaptured. Thus, Iraqi and Syrian forces have regained control over the extensive geographic area previously controlled by the terrorist group in Iraq and Syria. The terrorist group's state-like central structure, infrastructure, and capability have been shattered and diffused into the war-ravaged communities. At the same time, supporters of the terrorist group in the area have converted to covert guerrilla-like operations, with hidden assailants that carry out attacks in smaller cells, mainly against security forces in Iraq and Syria.

By and large, this development has meant that Daesh is no longer the most active terrorist group in the world and that terrorist attacks now cause greater consequences in Afghanistan than in Iraq. Globally, the number of registered terrorist attacks, on an annual basis, has dwindled by more than 50% since it peaked in 2014. This is also reflected in a continuing trend of a reduced number of attacks in Europe.³

The changing conflict dynamics in the Middle East have become increasingly characterised by Iran's military and political influence in its vicinity. A clear development during the past year is Iran's growing openness about its alliances with various terrorist and militia groups in the region. Iranian support for Lebanese Hizballah, with financial resources and weapons systems such as robots and drones, is well known. During the year, Shia militia in Iraq, backed by Iran, carried out attacks targeting military bases of foreign forces, probably as part of fighting the US presence and Western influence in the region.⁴ An escalation of this form of state-sponsored warfare through non-governmental representatives, which has previously been directed primarily at Israel, may result in these groups' gaining a greater ability to strike against Western interests in and outside the region.

Drones adapted to carrying simple armaments in the form of grenades have been increasingly used by terrorist and militia groups in Syria. The Russian defence minister, Sergei Shoigu, stated in December that Russian air defence

³ Global Terrorism Index 2019; Measuring the impact of terrorism, Institute for Economics & Peace, November 2019.

⁴ Julian Borger, US: strikes on Iran-backed militia a response to "campaign" of attacks by Teheran, Guardian, 2019-12-30.

systems had downed 53 drones and 27 multiple-launch rockets that had been fired by terrorist groups in Syria in 2019.⁵ An example of how the threat from drones is developing is the 13-drone attack carried out on the Russian air base, Khmeimim, Syria, in January 2018.⁶

Despite the fact that no serious CBRN events that could be linked to terrorists or other violent groups occurred during the year, concerns about potential threats of this nature have characterised both threat perspectives and countermeasures. One example of this is Europol's annual assessment of the terror threat, which was published in June, and that highlighted CBRN terrorism as a challenging concern, based on the incidents that have occurred.⁷ The assessment was mainly derived from information that the plans for three 2018 attacks in Europe, all of which were averted, had involved CBRN materials. All three cases were linked to the plant toxin, ricin. The potential perpetrators had access to the toxin in only one of the cases, and then in a limited amount. In the other two, less substantial cases, information linked to the actors showed an interest in carrying out ricin attacks.

Europol has also observed a general increase in the dissemination of propaganda and instructions for carrying out CBRN attacks. It is not clear for us if the increase is linked to specific materials, such as toxins, or if the increase is linked to calls and discussions of CBRN materials in general, or if CBRN information is a subset of a general increase in information that is disseminated between extremists.

The UN function that oversees the sanctions against terrorist groups such as Daesh and Al Qaeda has emphasised that Daesh continues to be the terrorist organisation that represents the principal threat regarding the ability to perform large-scale and complex terrorist attacks. The terrorist group is reported to show a continued interest in carrying out attacks against air transports and in further developing its ability to use chemical, biological, and radiological weapons.⁸ Efforts by Daesh to develop the ability of potential attackers to carry out attacks include the dissemination of instructions for the development of rudimentary chemical and biological weapons. Despite eliminating Daesh's ability to produce chemical weapons in Iraq, the UN function emphasises that the knowledge to produce this type of weapon still exists within that organisation and that it can be disseminated to other non-state actors.⁹

⁵ Defence Ministry Board Meeting, President of Russia, Moskva, 2019-12-24.

⁶ Kyle Rempfer, Did US drones swarm a Russian airbase? Probably not, but that capability isn't far off, *Military Times*, 2018-10-29.

⁷ Europol, *European Union Terrorism Situation and Trend Report 2019*, June 2019.

⁸ United Nations Security Council, S/2019/50, 2019-01-15.

⁹ United Nations Security Council, S/2019/570, 2019-07-15.

At a conference on military medicine held under the Shanghai Cooperation Council in mid-September, Defence Minister Rajnath Singh, of India, warned of the threat from bioterrorism. During the year, India received support from France to develop the ability to handle terrorist attacks that used biological agents. An Indian delegation made up of representatives from relevant agencies¹⁰ carried out official bilateral visits in France at the beginning of October. The Indian delegation also took part in an exercise designed for the occasion, and met with representatives from French companies specialising in the production of emergency-management materials.¹¹

As were preceding years, 2019 was characterised by the use of various forms of dangerous materials, for antagonistic purposes, to threaten and/or harm people around the world. One phenomenon that has been occurring with some regularity is to play on the general public's widespread fear concerning the potential use of toxic materials. An example of this is the repeated occurrence of letter mail that includes a message that the recipient perceives to be a threat and also has content that can be associated with toxic materials or infectious agents, hereafter called powder letters, which from time to time are sent to authority representatives, various news media, politicians, and entrepreneurs. In the vast majority of cases, the letters only contain something harmless, such as flour, or sugar substances.

¹⁰ Indian agencies represented at the conference were the National Disaster Management Authority (NDMA), National Disaster Response Force (NDRF), and National Investigation Agency (NIA).

¹¹ French Embassy in New Delhi, Interministerial CBRN training in France, in.ambafrance.org, 2019-10-21.

Threats, rhetoric, and information dissemination

Dissemination of information that aims to inspire attacks with toxic and contagious materials occurs consistently within extremist environments promoting violence. Examples of this type of discussion and propaganda were found in all extremist environments over the past ten years and are an indicator of the interest among these actors for this type of attack.

It should be noted that the Islamist violence-promoting environment has acquired a greater interest for this type of propaganda than have, for example, the extreme right and autonomous movements. However, and perhaps contrary to general belief, among the information disseminated through websites on the internet, chat groups, and other media channels that we have observed during this period, CBRN-related information constitutes a very marginal share of the large amount of information disseminated in these environments. We can also note that a large part of the CBRN-related information dissemination that occurs usually constitutes efforts aimed at inspiring initiatives and spreading fear in Western countries, rather than delivering detailed and operationally useful instructions.

Based on information available to us, during 2019 media channels and propaganda linked to Daesh and al Qaeda did not conduct any targeted dissemination of information concerning CBRN attacks. Contrary to this finding, both Europol and the UN Expert Group, which monitors the activities of terrorist groups on the basis of existing UN sanctions, have flagged for having observed the dissemination of information regarding instructions for CBRN attacks during the current year.^{12, 13} However, it is likely that the warnings in both of these reports are linked to the dissemination of information that was noted in our 2018 report and to the cases of suspected planning of attacks with the plant toxin ricin that were revealed in Europe in the same year.

Media channels linked to Daesh carried out at least two propaganda drives during 2018 that were aimed at threatening the Western world with forthcoming attacks using biological agents and toxins. These types of propaganda drives have also occurred previously; their likely aim is to inspire sympathizers around the world by signalling that this type of attack is

¹² United Nations Analytical Support and Sanctions Monitoring Team, 24th report (S/2019/570), p 13, 2019-07-15.

¹³ Europol, European Union terrorism situation and trend report 2019, June 2019.

desired.^{14, 15} The cases in 2018 of suspected preparation of assaults containing ricin show that this kind of information dissemination can inspire initiatives among sympathizers to try to develop a capacity for attacks with toxic materials.

Previous examples show that measures to prepare attacks with poisonous materials were supported by individuals through direct communication, taking advantage of popular encrypted messaging applications. The preparation of the attacks by Daesh sympathizers in Sydney in July 2017 is a concrete example of this; the operational guidance was given by people within Daesh who were likely to have gained experience of developing similar capabilities within the framework of the Syrian conflict. Operational support at a distance, through encrypted applications, presents a tough challenge for law enforcement agencies and security services in detecting assault preparations. At the same time, this means that the assailant does not necessarily have to possess all the knowledge required to prepare an attack that, even though it may be based on easily accessible substances, materials, and processes, can have very serious consequences.

¹⁴ Anonymous, Pro-ISIS media outlet publishes posters calling for biological attacks in the West, Middle East Media Research Institute (MEMRI), 2018-07-29.

¹⁵ Anonymous, Exclusive: Article in Pro-ISIS newspaper gives detailed instructions on use of ricin, Middle East Media Research Institute (MEMRI), 2018-01-22.

CBRN-related incidents linked to known terrorist groups

Allegedly, Daesh in Syria and Iraq today has lost key individuals, control over local infrastructure, and access to essential chemicals for maintaining and developing the ability to carry out attacks with toxic materials. No known attacks with chemical materials have been carried out by Daesh in the conflict area since the end of 2017. However, there are reports of a number of claims that preparations and actual attacks with toxic chemicals have been carried out in recent years, but these activities remain unverified.

In 2019, a number of allegations concerning chemical weapons operations by oppositional groups were reported in Syria. Most of this information comes from numerous sources: media agencies that support the regime in Damascus as well as representatives for the Russian Foreign Ministry; Russian representatives in the UN system; and representatives of the Russian Reconciliation Center for Syria, based in the Syrian port city, Latakia. It can be noted that the majority of these allegations point to the Salafist, jihadist group Hayat Tahrir al-Sham (HTS), which controls parts of Idlib province. These media reports also commonly designate Western states as supporters of the alleged attack preparations and attacks.¹⁶

Al-Masdar News reported in February that two Syrian soldiers in southeast Idlib were in need of medical care after HTS had launched unidentified ammunition with an unknown chemical towards them.¹⁷ The article did not describe the soldiers' symptoms in any detail. This type of reporting occurs regularly and the incidents referred to are usually very difficult to confirm. We consider that claims about chemical weapons activities being conducted by opposition groups, and that are reported only by regime-friendly media sources, or through statements from representatives for allied countries, are unreliable.

Jamaah Ansharut Daulah (JAD), an organisation that the US has designated as a terrorist group, has performed a series of terrorist attacks in Indonesia in recent years. When JAD members were arrested by Indonesian security forces in October, a limited amount of rosary peas from which the toxin, abrin, can be extracted were among the weapons and objects seized in connection with the arrest. Jihadist groups in Indonesia have previously shown interest for the use of toxic materials, and while this case confirms their interest in toxins, their ability to use toxins in attacks appears to be limited, despite the fact that

¹⁶ Raed Jabr, Moscow warns against "fabricated" chemical attacks in Syria's Idlib, Asharq al-Awsat, 2019-11-27.

¹⁷ Anonymous, Jihadist rebels allegedly use chemical weapons against Syrian Army in southeast Idlib, Al-Masdar News, 2019-02-12.

instructions on how to use them have circulated among extremists for many years.

Another example of the spread of instructions by extremists is that of an American woman from Wisconsin, who was convicted during the year for providing support to Daesh. The woman used Facebook groups and encrypted messaging applications to spread instructions on the construction of explosive devices and the chemical extraction of the plant toxin, ricin, for use in assaults (more on this on page 23 in the chapter on chemical materials).

Incidents with nuclear and other radioactive materials

The member states of the IAEA¹⁸ Incident and Trafficking Database (ITDB) share restricted reports on incidents involving nuclear¹⁹ and other radioactive materials that have been handled outside of government control. ITDB compiles open statistics on the number of reports it receives. During 2019, 192 incidents were reported to ITDB by its member states. Of these, 129 took place in Europe. Thus, about every three days an incident involving nuclear and other radioactive materials is reported to the database from member states in Europe.

Since 2012, when FOI started this series of reports, we have tried to pay attention to incidents that stand out from the normal reporting on nuclear and other radioactive materials. Over the years, we have reported on incidents involving nuclear and other radioactive materials linked to threats, terrorism, and murder; about startling thefts and robberies, as well as spectacular attempts to sell material; and security incidents at nuclear facilities. This year's compilation does not deviate significantly from the established pattern. It can be underlined that none of the reported incidents are of the magnitude that they have posed a threat to national or international security.

Drone observations at Forsmark nuclear power plant

Reports of drones flying over nuclear power plants first came to our attention in this report series in 2014, when 13 of the 19 French nuclear power plants reported trespassing incidents involving drones.²⁰ During the same period, there were a number of drone observations at Swedish nuclear power plants, which led to the imposition of a flight ban over the country's nuclear power plants on October 15, 2015.²¹ Since then and until the third quarter of 2019, we had not observed any new incidents.

¹⁸ International Atomic Energy Agency, iaea.org.

¹⁹ Nuclear materials are uranium, plutonium, and thorium.

²⁰ Magnus Normark, Anders Lindblad, Björn Sandström, Anna-Karin Tunemalm, Per Wikström, CBRN-hot från ickestatliga aktörer – Årsrapport 2014 [CBRN Threats Involving Non-state Actors – Annual Report 2014], FOI-R--4079--SE, April 2015.

²¹ 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], FOI-R--4192--SE, December 2015.

Over a period of six weeks between October 25²² and December 7,²³ Forsmark personnel reported drone observations on six occasions. Despite police use of helicopters to investigate several of the incidents, no drone operator could be detained. The drone incidents led to several reports of violations of national laws dealing with protected areas and aviation restrictions.

Attempts to smuggle nuclear material in the Black Sea region

Since the disintegration of the Soviet Union, Caucasia has been a region where nuclear and other radioactive material has frequently been smuggled across borders and criminal opportunists have tried to sell such material to a potential buyer, often someone appearing in disguise and from the country's security services. Georgia, in particular, has a long list of such cases.²⁴

At the end of November, in Vienna, Austrian and Moldovan authorities, together with Europol, arrested three persons suspected of smuggling nuclear material and of trying to sell nuclear material (according to an Associated Press article) to an unnamed army.²⁵ The group had previously been infiltrated by a Moldovan security agent. During the operation, a container was seized that, according to the Moldovan PCCOCS (Prosecutor's Office for Combating Organized Crime and Special Cases), was reported to contain 860 g uranium-235 and was to be sold for EUR 3 million.²⁶ Uranium-235 is the uranium isotope that was used for the atomic bomb released over Hiroshima in 1945.

Although the sales agreement was made in Moldova, the actual sale and transfer was to take place in Vienna. One of the three persons, all Slovaks, who were arrested in the operation has previously been convicted for similar crimes. According to *Salzburger Nachrichten*, the forensic investigation revealed that the container contained sand, manure, and weights.²⁷ Europol has

²² Anna Bergman, Forsmarks presschef: Vi tar händelserna på stort allvar, Sveriges Radio P4 Uppland, 2019-11-01.

²³ Erik Möller, Ny drönarincident vid Forsmarks kärnkraftverk, Sveriges Radio P4 Uppland, 2019-12-07.

²⁴ Lyudmila Zaitseva & Friedrich Steinhäusler, Nuclear Trafficking Issues in the Black Sea Region, SIPRI, April 2014.

²⁵ Anonymous, Austrian, Moldovan police break up nuclear smuggling ring, Associated Press, 2019-12-06.

²⁶ Office of the Prosecutor General of the Republic of Moldova, Grupare criminală transnațională specializată în circulația ilicită a substanțelor toxice și radioactive – destructurată de către PCCOCS și INI, 2019-12-06.

²⁷ Gerald Stobier, Nuklearbrüger hatten nur eine Uran-Attrappe, *Salzburger Nachrichten*, 2019-12-10.

posted a video on YouTube with highlights of the operation in Moldova and Austria.²⁸

Two incidents in Georgia

On July 11, a radiation alarm was activated at the Sadakhlo border crossing between Armenia and Georgia. A minibus from Armenia had activated the alarm and when border guards inspected the vehicle, they found seven nylon bags. Four of the bags contained radioactive material, which according to transport documents were to be transported to Russia. The radioactive bags contained over 70 kg of cylindrical metal elements of an alloy containing the natural radionuclide thorium-232. The inspectors measured a dose rate reading of 18 microsieverts per hour, which is about 200 times above normal background radiation.

The Armenian citizen driving the minibus was detained by the Georgian State Security Service and, according to newspaper reports, could face 5-10 years in prison. The Armenian was charged with unlawful possession of radioactive material and violation of the Customs Act.²⁹ Initial media reports on the case may have been somewhat exaggerated, since no follow-up articles have been published. The Georgian security service has more than once been involved in operations dealing with seizures of radioactive material that have resulted in spectacular videos and images that have ended up in media articles. In this case, images of metal cylinders, nylon bags, and radiation identification equipment were distributed. The border station in Sadakhlo has previously gained notoriety in a similar context. In the summer of 2003, another Armenian was stopped, at the same border crossing, with 170 g of highly enriched uranium hidden in a cigarette box. It is still the largest known seizure of potential nuclear weapons material of the 21st century.³⁰

Another attempt to sell nuclear material was discovered in Georgia earlier in 2019. In March, two persons were arrested for trying to sell about 40 grams of uranium-238 for around USD 2.8 million.³¹ For your information, in March 2019 the world market price for 1 kg uranium peaked at USD 61.

In both Moldova and Georgia, this type of crime can lead to prison sentences of up to 10 years.

²⁸ Europol, Crime group suspected of smuggling nuclear materials arrested in Vienna, <https://www.youtube.com/watch?v=YVvY0fSP7u8>, 2019-12-06.

²⁹ Armenian citizen detained in attempt to transport radioactive substance to Russia via Georgia, Agenda.ge, 2019-07-15.

³⁰ Lawrence Scott, A Smuggler's Story, Atlantic, April 2008.

³¹ Margarita Antidze och Francois Murphy, Georgia detains two for trying to sell radioactive uranium: Statement, Reuters, 2019-03-13.

Online uranium sale in Japan

Japanese authorities have also spotted uranium for sale during 2019. A 24-year-old man had put up small quantities of depleted and natural uranium for sale without the necessary permits for doing so. The uranium material was purchased by a 17-year-old student and a 61-year-old pharmacist.³² The story came to the authorities' attention in January 2018, when "99.9% pure uranium" was put up for sale on an online auction.³³ According to the examination by the Japan Atomic Energy Agency, the material consisted of depleted uranium and uranium ore concentrate with a natural uranium composition.³⁴ The three suspects claimed not to have any hostile intentions with the purchase of the uranium. All three stated that they had a great interest in chemistry. However, earlier this year, the student was once again the main person in another investigation, this time as the producer of small quantities of erythritol tetranitrate (ETN).³⁵ He was also reported to have had contacts with another student, who was recently sentenced to 3-5 years in prison for crimes that involved the manufacture of triacetone triperoxide (TATP).³⁶ TATP and ETN are both examples of homemade explosives, explosives that can be produced in improvised home laboratories.

Uranium seizure in Kazakhstan

This year's largest uranium seizure, 240 kg, was reported from Kazakhstan, by the country's national security committee. Four persons were arrested for the theft from a company that used uranium concentrate to extract vanadium.³⁷

Traffic accident, followed by theft of radioactive material, in India

During the night of June 26, in the West Indian state of Maharashtra, a car carrying three persons working in industrial radiography was involved in a traffic accident.³⁸ Two of the workers were immediately killed, while the third

³² Chihaya Inagaki & Yuko Kawasaki, Nuclear no-no: 17-year-old nabbed for uranium trade, *Asahi Shimbun*, 2019-12-11.

³³ Julian Ryall, Japanese teen who traded uranium online and even processed it into yellowcake was just a "chemistry geek", analyst says, *South China Morning Post*, 2019-04-10.

³⁴ Anonymous, JAEA confirms depleted, yellowcake uranium sold on Japanese internet auction site, *Mainichi*, 2019-03-30.

³⁵ Anonymous, Boy, 16, accused of making lethal explosives at Tokyo home, *Asahi Shimbun*, 2019-04-09.

³⁶ Anonymous, Tokyo 16-year-old bought uranium and produced yellowcake to sell online, sources say, *Japan Times*, 2019-04-09.

³⁷ Anonym, Attempt of sale of more than 240 kg of uranium concentrate suppressed in the Kyzylorda region, KazTAG, 2019-10-28.

³⁸ Industrial radiography is a technique that is primarily used to control the quality of welding.

was seriously injured and later died in hospital. A radiation protection officer from the radiography company, which had been notified of the accident, arrived on the scene a few hours later. The radiation protection officer then made a worrying discovery, as the radiography equipment, containing a relatively strong iridium-192 source, was missing and had probably been stolen shortly after the accident.

The police issued alarms about the missing radiation source and a major search operation with the assistance of the Indian Atomic Energy Regulatory Board was launched. Following a hint from a member of the public, the equipment was found a few days later at a scrap yard. As the instrument had not been tampered with and the radiation source was still in its safe position, no one was injured. Thus, an accident similar to that in Delhi in 2010 was probably prevented. In 2010, one person died after a strong radiation source containing cobalt-60 had been sold by Delhi University to a scrap dealer. The radiation source in the present incident had the potential to kill a person if it had been handled by someone unaware of what the object was.

Car hijacking in Peru, with unexpected consequences

On August 8th, the driver of a Toyota Hilux (a truck-like van) was robbed of his car keys after stopping for dinner at a restaurant in Villa El Salvador, a suburb of Lima. The van's owner had stored industrial radiography equipment, which belonged to his company, in the vehicle.

IPEN, the Peruvian Institute of Nuclear Energy, issued a stark warning about the missing material to the perpetrators and at the same time sought persons who could provide information on the whereabouts of the radiation source. The official warning only resulted in IPEN's receiving several telephone calls in which informants demanded money for the delivery of the radiation source.³⁹

One week after the theft, courtesy of a phone call from an anonymous informant, the undamaged radiation source was retrieved in San Juan de Miraflores, in the vicinity of Villa El Salvador, where it had been lost.⁴⁰

³⁹ Anonymous, Radioactive Material Warning: These are the recommendations for preventing health damage, newsbeezzer.com, 2019-08-14.

⁴⁰ IPEN, IPEN Informa a la población que ha recuperado la fuente radiactiva robada recientemente, 2019-08-15.

Other

In our 2018 annual report, we described a case where Turkish police had seized what was reported to be 1.4 kg of californium.⁴¹ In 2019, a new seizure of alleged californium-252 was made in Bolu province, in northern Turkey. The material was found in the gear box of a car. This time, the amount was claimed to be 18.1 g, which has an estimated market value of around EUR 65 million.⁴² Californium-252 is the most common isotope of californium and is a neutron emitter, i.e. it emits a large number of neutrons when it decays. Therefore, this rare isotope is used in minute quantities in applications where neutrons are critical, for example, in starting a nuclear reactor, or in metal exploration. In the latter case, neutrons are used to activate metal ore in the ground to make it detectable. In the 2018 annual report, we wrote that the seized material was not californium, since the reported amount would require several thousand years of production, given the small quantities produced per year. The amount of reported californium in this case is also unrealistic, as the worldwide annual production of californium-252 is about 0.25 g.⁴³ Thus, 18.1 g represents about 72 years of production.

⁴¹ Magnus Normark, Anders Lindblad, Anna-Karin Tunemalm, Daniel Wikteliuss, Per Wikström, Stina Holmgren Rondahl, CBRN Threats and Incidents Involving Non-State Actors – 2018 Annual Report, FOI-R--4812--SE, November 2019.

⁴² Clas Svahn, Smugglare greps med mystiskt ämne, *Dagens Nyheter*, 2020-02-14.

⁴³ National Research Council of The National Academies, Radiation source use and replacement: Abbreviated version, The National Academies Press, Washington DC, 2008.

Incidents with chemical materials

Chemicals are the CBRN material most commonly used to cause harm to others. Poisoning incidents, such as suicide attempts, are dominated by overdoses of medicines and drugs. Antagonistic use of toxic chemicals and plants to poison other humans occurs in a wide range of crimes. Incidents during 2019 show the same trend as previous years, namely that chemical poisoning attempts are more common in close relationships, but that they also occur, for example, in work-life conflicts and in healthcare situations, such as in hospitals and in elderly homes. The use of chemicals to harm, threaten, or kill, also occurs in hate crimes. Powder letters is a recurring phenomenon. In 2019, the Findus food company faced such a threat, as did several other European companies in the food industry.^{44, 45} The majority of powder letters contain harmless material. For more on powder letters, see page 31 for incidents related to biological materials.

Intentional poisoning with chemical materials is facilitated by the availability of such products in society and the fact that information on the toxicity of the active components is often easy to find. Often, a perpetrator will have studied the mode of action of the poisons available to him or her for antagonistic purposes. It is much rarer for a perpetrator to select a specific poison with the intention of avoiding detection. The compilation of incidents discussed below is a sample of those that were reported in 2019.

Domestic incidents

In April, a man was sentenced by a district court to 18 years in prison for the murder of a woman in Solna, a Stockholm suburb, that had taken place in 2018. The man was accused of injecting a lethal dose of tramadol, an opioid, into the victim and then placing the woman in a filled bath tub in her home. After that, the man alerted police with the pretext that something had happened to the woman and then waited outside the apartment. The police initially suspected suicide by drowning under the influence of drugs. The man had been in a relationship with the woman and owed her money. The woman had previously reported him to the police for assault, fraud, and threats.

The verdict of the district court was appealed to Svea Court of Appeal, which in its sentence stated that it could not be ruled out that the woman had injected the drug herself, and rejected the murder charge. The man was not completely

⁴⁴ Janne Andersson & Martin Lindstam, Utpressningsshot mot Findus i Malmö – polisen hittade vitt pulver, SVT Nyheter, 2019-04-07.

⁴⁵ Per Carlsson, Hotet mot Findus i Malmö är avblåst, SVT Nyheter, 2019-04-08.

acquitted as he was sentenced to prison for three years and six months for other crimes.^{46, 47}

In March, a woman from Piteå, a town in northern Sweden, was charged for attempting to murder her partner. The indictment alleged that the woman had made repeated attempts to poison the man. Aconitine extracts from home-grown aconitum plants and sodium azide retrieved from a vehicle airbag had been mixed in drinks given to the man. On one occasion, she gave her partner a spiked smoothie. The man reacted to the taste but was motivated to continue drinking it because the woman said it had many useful nutrients. In the course of their years-long relation, the man had been repeatedly forced to seek emergency medical treatment for vomiting, diarrhoea, and abdominal pain. The woman allegedly had also tried to murder the man by arson when their shared home burned down. The most likely underlying motive for the murder attempts was her financial situation. The woman had lost large sums on gambling and had taken out a life insurance policy on her partner that would have resulted in a payout of around SEK 3 million (EUR 300,000).^{48, 49, 50}

An attempted poisoning that occurred in Gothenburg in March 2018 went to trial this year.^{51, 52, 53} A man became acutely ill and his condition required several months of intensive care to save his life. At the time, it could not be determined what had caused the sudden and life-threatening symptoms. After regaining consciousness, the man claimed that he had been subject of an attempted murder and that his sudden illness was the effect of a drink his partner had given him. When the police became involved in the case, hair analysis⁵⁴ was performed; this showed traces of an unusual amphetamine-like net drug, 3-fluoroethamphetamine, which the man had been given under the

⁴⁶ Danielle Lagnert, Man döms för mord på före detta flickvän, SVT Nyheter, 2019-04-04.

⁴⁷ Kazhal Mohammadi, Man frias i hovrätten från mord på före detta flickvän, SVT Nyheter, 2019-07-04.

⁴⁸ Victor Lundmark, Kvinna i Piteå försökte förgifta sambo med växten stormhatt, SVT Nyheter, 2019-03-08.

⁴⁹ Anton Nilsson, Kvinna misstänks ha försökt mörda man med giftig smoothie, Expressen, 2019-03-08.

⁵⁰ Joel Gustavsson & Christoffer Åhlund, Ung kvinna åtalas för försök till mord, Norran, 2019-03-09.

⁵¹ Susanna Ahnlund, Kvinna anställd på Västerås stad misstänks ha försökt giftmörda sambon – häktades efter husrannsakan, SVT Nyheter Västmanland, 2019-05-21.

⁵² Susanna Ahnlund, Tidigare kommunanställd misstänks för brott efter annan ex-partners död, SVT Nyheter Västmanland, 2019-06-19.

⁵³ Helena Jönsson, Kvinna åtalas för misstänkt giftmordsförsök på sin sambo, SVT Nyheter Västmanland, 2019-08-27.

⁵⁴ The National Board of Forensic Medicine: Information on medical and recreational drug use is stored in hair follicles. When urine or blood no longer show traces of drug use, hair can still provide valuable information on previous intakes – from a few weeks to several months back.

pretext that it was cholera vaccine. The district court sentenced the woman to 10 years in prison.⁵⁵

A 35-year old man in Alvesta, a town in southern Sweden, tried to kill his daughter by giving her gruel prepared with psychoactive drugs. The child became unconscious and had to be treated in an intensive care unit for several days. The man acknowledged his actions, but claimed that he had been in delirium and should not be held responsible. The district court convicted him for attempted murder; he was sentenced to undergo forensic psychiatric care and to pay compensation to his child.⁵⁶

International incidents

USA

In Wisconsin, a woman who was arrested in 2018 for posting instructions and solicitations on social media about the production and dispersal of poison for antagonistic purposes, acknowledged in April 2019 that she had been doing this in support of Daesh. The instructions that were posted described the manufacture of tri-nitro-toluene bomb belts. Furthermore, the woman had made general requests for extraction of ricin and its distribution in letters to authorities and via drinking water. Advice published by the woman was said to include detailed instructions for extraction of the toxin from castor seeds.⁵⁷

A woman from Long Island, New York, was charged with having attempted to murder her former husband by poisoning him with the antifreeze, ethylene glycol. The man had become suspicious when he felt that drinks he had consumed in his home had an unusual taste and the couple's 4-year old son told his babysitter that "mommy put something in daddy's drink." A surveillance camera was then installed and on a later occasion showed the woman entering the man's house and pouring a pink liquid into a wine bottle. Analysis of the bottle's contents confirmed the presence of ethylene glycol. It was also established that the woman had made an internet search on "what liquids for cars can kill a human?"⁵⁸

⁵⁵ TT, Försökte förgifta sambon – döms till 10 års fängelse, SVT Nyheter Västmanland, 2019-10-30.

⁵⁶ TT, Försökte mörda sin dotter med giftig välling, Aftonbladet, 2019-07-12.

⁵⁷ Tol Staff/AFP, Israeli Arab woman helped IS plan terror attacks on US water sources, festivals, *Times of Israel* (ToI), 2019-04-23.

⁵⁸ Julia Jacobo, Wife charged with attempted murder for allegedly trying to poison husband with antifreeze, ABC News, 2019-01-03.

A Berkeley engineer was charged with attempting to murder a colleague by poisoning her food and drinks with cadmium.⁵⁹ For 18 months, the colleague had noticed a strange taste or smell from food and water that she had left unattended in her office. On several occasions, the victim was forced to seek medical care after consuming poisoned foodstuffs and some of her relatives had also taken ill after consuming water that she had brought home. The victim and the relatives all tested positive for an elevated level of cadmium in their blood. A surveillance camera that was mounted in the victim's office showed that the accused on two occasions had added something to water bottles in the room. Cadmium was later detected in the water bottles. It has not been possible to establish the motive behind the man's actions.⁶⁰

A Utah woman was charged with an attempt to murder her partner with a chemical drain cleaner. The 43-year-old woman admitted during interrogation that she had given her partner a few spoons of Drano liquid pipe cleaner and hoped that this would "anesthetize him for good." The man experienced severe pain in the abdomen after the involuntary intake, which led the female suspect to call for a taxi, which took the victim to hospital. The man survived. Clog removers usually consist of strong lye (sodium hydroxide).⁶¹

A Pennsylvania caregiver has been charged with attempting to murder an elderly couple by lacing their cigarettes with rat poison. The couple's female caregiver admitted that she had mixed tobacco with rat poison, before rolling their cigarettes. The alleged motive behind her actions was that she had been fired from her previous work with the couple. From the information available to us, it cannot be established whether the couple actually smoked the tainted cigarettes.⁶²

During the search of a male suspect at a police station in Methuen, Massachusetts, mayhem broke out and the suspect later attempted to attack a police officer with powdered fentanyl. It was initially discovered that the man, who was previously known to the police, had syringes and needles in his pockets. A full-body search was then ordered and when his clothes were taken off, a plastic bag with white powder, taped to the man's thigh, was discovered. Although the man was ordered not to touch the bag, he ripped it off and emptied its contents throughout the room. One of the police officers, who was

⁵⁹ Cadmium is a heavy metal used in rechargeable batteries and as colour pigments in artist paint. Short-term exposure to the metal can cause flu-like symptoms and damage to the lungs.

⁶⁰ N'dea Yancey-Bragg, California engineer poisoned his colleague for 18 months, police say. He's charged with attempted murder, USA Today, 2019-04-04.

⁶¹ Amanda Woods, Utah woman allegedly tried to kill live-in boyfriend with Drano, New York Post, 2019-05-03.

⁶² Morgan Windsor, Caregiver accused of trying to kill elderly couple with rat poison-laced cigarettes, ABC News, 2019-06-18.

covered in powder, was rushed by another police officer to a nearby hospital for decontamination and examination.⁶³

In November, a man of Latin American origin was attacked with acid in a hate crime-like event in Milwaukee. A person unknown to the victim approached him when he had parked his vehicle outside a restaurant and demanded that he move the vehicle, which he did. When the victim was trying to re-enter the restaurant, the perpetrator returned, uttering racist comments. Following an exchange of words, the perpetrator then threw acid in the victim's face. A house search later revealed that the offender had hydrochloric acid, sulfuric acid, and lye stored in his home.⁶⁴

Japan

In January, several Japanese pharmaceutical companies received letters containing potassium cyanide. The letters also threatened that copies of medical drug products poisoned with potassium cyanide would be disseminated, unless a large sum of money in crypto-currency was paid. Many of the letters were signed with the name of the executed leader, Shoko Asahara, of the notorious doomsday cult Aum Shinrikyo. In addition to pharmaceutical companies, letters were also sent to a food company and the newspaper, *Mainichi Shimbun*. Several of the pharmaceutical companies, according to their own information, have been exposed to similar threats since January 2018.⁶⁵

United Kingdom

In July, a deliberate release of tear gas on a London Underground train resulted in so much discomfort from coughing and breathing difficulties that several passengers had to be treated on-site, by paramedics. The tear gas was used in a fight between a number of men, one of whom was arrested on “suspicion of affray and administering poison with intent to injure or annoy.”⁶⁶

Australia

A family of two adults and two children was discovered, deceased, in a Sydney residence in October 2016. The autopsy showed that the cause of death was carbon monoxide poisoning. The police investigation into the case, which

⁶³ Beth Germano, “Career criminal” spills fentanyl on officer in Methuen police station, CBS Local – Boston, 2019-05-09.

⁶⁴ Katie Mettler, Man charged with a hate crime in alleged acid attack that left a Latino man with second-degree burns, *Washington Post*, 2019-11-07.

⁶⁵ TT, Giftot mot läkemedels- och mediebolag i Japan, SVT Nyheter, 2019-01-26.

⁶⁶ Anonymous, Arrest after CS gas released on Tube at Oxford Circus, BBC News, 2019-07-22.

was not published until this year, reported that the woman and the two children had been deliberately poisoned by the man, who at the same time took his own life. The investigation showed that the man had procured materials such as pipes and hoses to carry the gas into the house, and that via his company he had managed to order carbon monoxide cylinders and have them delivered to the house of one of his friends. The driver who delivered the gas cylinders described the delivery site as “odd,” but still chose to deliver the gas. The prosecutor stated that it is important to educate drivers who deliver toxic gases and encourage them to report non-standard deliveries.^{67, 68}

France

At a hospital in Besançon, as many as 66 cases of cardiac arrest during surgery had been observed, all without reasonable medical explanation. This year, the cases were investigated by the police, who discovered that one physician had been present during all 66 surgeries. According to the indictment, in 24 of the surgeries, nine of which resulted in death, he had modified the anaesthetic drug preparations so that they contained increased levels of anaesthetic or potassium. When a critical condition occurred during surgery, the anaesthesiologist moved in to show his ability to revive patients.⁶⁹ A similar case in Germany was resolved in 2017. For several years, a male nurse had deliberately poisoned and caused cardiac arrest in at least 90 patients, in order to show his ability to save lives. The case is described in a previous annual report.^{70, 71}

India

A man and woman in New Delhi have admitted that they poisoned the man’s wife with cyanide in April. The man was in an ongoing affair with the woman when they decided to kill his wife. The couple sought information on poisons difficult to detect at an autopsy and managed to obtain a cyanide solution. The man began allowing his mistress to meet with his wife, under the false pretence that she needed help with a job application. On one occasion, they

⁶⁷ Kathleen Calderwood, Man suspected of killing family in murder-suicide was having affair, inquest hears, ABC News, 2019-04-08.

⁶⁸ Australian Associated Press, Manrique-Lutz inquest: father acted alone when he murdered wife and children with lethal gas, *Guardian*, 2019-05-17.

⁶⁹ Anonymous, French doctor suspected in 17 more poisoning cases, France 24/AFP, 2019-05-17.

⁷⁰ Magnus Normark, Anders Lindblad, Stina Holmgren Rondahl, Anna-Karin Tunemalm, Per Wikström, CBRN-hot från ickestatliga aktörer – Årsrapport 2017, FOI-R--4538-S-E, December 2017.

⁷¹ AFP, Nurse suspected of 90 murders in “Germany’s worst post-war killing spree,” The Local, Germany, 2017-08-28.

met in the couple's home and the woman then offered the victim some orange juice spiked with cyanide. The wife started to feel ill and tried to leave the house, when the mistress made an attempt to choke her with a pillow to prevent her escape. The same evening, the man himself brought the victim to a hospital, where she was pronounced dead. At the autopsy, a suspicion of poisoning emerged, and with further technical evidence the perpetrators could be arrested and prosecuted.⁷²

In another case in India, a 47-year-old woman is reported to have admitted poisoning six persons with cyanide. She is alleged to have poisoned her first husband, her parents, her current husband's ex-wife, and two other persons, between 2002 and 2016. Two individuals were arrested as accomplices, one of whom, a goldsmith who claims her innocence, is accused of providing the woman with cyanide preparations, allegedly for controlling rats. The woman's first victim appears to have been her mother-in-law, who died in 2002, after eating poisoned food. Six years later, the father-in-law died in a similar way. In 2011, the woman's husband also passed away. At his autopsy, traces of poison were found, but this was disregarded. The husband's uncle became the next victim when he insisted that a post-mortem be carried out on his nephew. When a child, in what was to be her new family, died in 2014, relatives demanded an investigation. When the child's mother also passed away, in 2016, the family became even more suspicious. In 2016, the woman now standing accused married the recently deceased woman's husband. An investigation spanning many years was reinitiated in 2019 by the first husband's brother, upon which the accused then confessed to all six murders. The woman's motivation was said to be to gain control over family finances and property.⁷³

Ten supporters of a Daesh-inspired terrorist cell (the Ummat-e-Mohammaddiya group) outside Mumbai were accused of planning a mass poisoning of visitors at a large ceremony in a Hindu temple in December 2018. The terrorist cell kept contact mainly via social media and sympathized with the controversial Islamic preacher, Zakir Naik. At least one of the members had actively planned to poison goat meat that was to be served at a sacrificial feast in the temple. According to the indictment, individuals in the group were involved in terror training in India and had contacts with terrorists outside India. The group members allegedly had access to information on explosives

⁷² Saurabh Trivedi, Woman served "cyanide-laced juice"; husband, girlfriend held, *The Hindu*, 2019-05-04.

⁷³ Anonymous, Kerala cyanide killing: Crowd boos family poisoning suspect in India, *BBC News*, 2019-10-10.

manufacturing and poisons through the Telegram messaging application. It is not clear what type of poison the group was planning to use or how far the plans had advanced.⁷⁴

⁷⁴ Anonymous, IS-inspired terror group planned to poison maha prasad, kill 400 Hindu devotees in Mumbra temple: ATS, India Today, 2019-07-25.

Incidents with biological materials

There has been no large-scale antagonistic attack with either infectious agents or toxins in 2019. There are, however, examples of incidents linked to such agents that we have decided to highlight in this report. The compilation of incidents is aimed to describe cases where actors have shown malevolent intentions.

In mid-October, when the incumbent Indonesian president was sworn in for a second term of office, the Indonesian counterterrorism police conducted synchronised raids at several locations around the country. At least 36 suspected terrorists were arrested. Three of the suspects, who were taken into custody in Cirebon, in western Java, had made a homemade explosive device that contained 310 g of rosary peas,⁷⁵ which contain abrin - a toxin with effects similar to ricin. According to available information, the bomb contained whole beans and not purified toxin. To get a toxic effect from the rosary peas, it is necessary to extract the toxin first. If a bomb is used to disperse toxin, it is very likely that the toxicity will be lost in the explosion. The three arrested persons are said to be followers of *Jamaah Ansharut Daulah* (JAD), an organisation with links to Daesh. It is evident that they lacked a deeper toxicological understanding concerning abrin and rosary peas.⁷⁶ There are examples of other incidents in Indonesia when terrorists have increased the impact of bombs with for example nails to attain a greater effect.^{77, 78} Whether the supposed purpose of the rosary peas was to exacerbate the bomb damage, or whether the explosives were meant to disperse toxin is unknown. However, it is a worrying observation that terrorists show a specific interest in adding toxic materials to their weapons arsenal, although, as shown in this case, their current ability seems rather limited. This is the second known case where Indonesian terrorists have shown a specific interest in using toxins. In 2011, another group, *Jamaah Ansharut Tauhid* (JAT), were planning to poison police officers by contaminating food with toxin at a food service. The day before the attack, the terrorists were arrested with water bottles containing ricin.^{79, 80}

⁷⁵ Rosary peas can be harvested from shrubs that are fairly common in tropical and subtropical areas. The beans are quite beautiful and often used to make homemade necklaces.

⁷⁶ Reuters, Indonesian police foil bomb plot before Jokowi's swearing-in, *Bangkok Post*, 2019-10-15.

⁷⁷ Yenni Kwok, Indonesian police have found a backpack bomb in a popular tourist area of Bali, *Time*, 2016-12-20.

⁷⁸ Associated Press, Bombing kills eight at Indonesian market, *USA Today*, 2005-12-31.

⁷⁹ V. Arianti, Biological terrorism in Indonesia, *The Diplomat*, 2019-11-20.

⁸⁰ Anonymous, 7 Terdakwa teroris yang hendak racun polisi diadili di PN Jakpus, *Detiknews*, 2011-12-20.



Figure 1. Rosary peas (source: Wikimedia Commons, Steve Hurst @ USDA-NRCS PLANTS Database).

A British 16-year-old Nazi sympathizer was arrested in March for collecting information on various types of weapons, making internet searches on how to produce ricin, and sharing terrorist manuals on internet forums and fascist websites. In addition, he had written plans for specific targets he intended to attack and had tried to acquire ricin from an American extremist. He was prosecuted and sentenced to six years and eight months in prison for terror-related crimes. The malicious teenager was apprehended before he had access to either weapons or toxins.^{81,82}

In December, a 50-year-old woman from Utah was arrested for buying, or attempting to buy, Vancomycin-resistant *Staphylococcus aureus* (VRSA) on Darknet.⁸³ Vancomycin is an antibiotic that is usually effective against bacterial infections. The bacterium, *Staphylococcus aureus*, is commonly occurring, but it can cause serious infections in individuals with an impaired immune system. An antibiotic-resistant bacterium such as VRSA causes great concern in the health care system. It is not clear whether the woman planned to use the bacterium for antagonistic purposes. The incident shows that US authorities, with some success, are trying to monitor electronic commerce in biological agents and prosecute the perpetrators involved.

African swine fever is a viral disease that affects wild boars and domestic pigs. So far, Europe has largely been spared from outbreaks of this troublesome

⁸¹ Lizzie Dearden, Teenage neo-Nazi convicted of planning terror attack targeting synagogues as part of a “race war,” *The Independent*, 2019-11-20.

⁸² Anonymous, Durham neo-Nazi teenager detained for terror attack plan, *BBC News*, 2020-01-07.

⁸³ Emily Crane, Utah woman, 50, is arrested for “buying a biological agent of mass destruction” online, *Daily Mail*, 2019-12-20.

animal disease, but since 2014 it has been present in some locations. However, in 2018 and 2019 China was severely affected by a major outbreak, which means that the country's pork production is expected to decrease by 30%.⁸⁴ There is concern that the outbreak could decrease the number of pigs in China by up to 200 million. An investigation conducted by journalists linked to the state news agency Xinhua claimed that criminal networks exploit the situation by spreading the virus to previously infection-free areas, forcing pig producers to sell their animals to the networks at reduced prices; the networks then transport the animals to other areas and resell them there as healthy. The virus is also alleged to have been spread to animal herds from drones through the release among the animals of materials contaminated with the virus.⁸⁵

Incidents with threat and powder letters

In spring 2019, powder-containing extortion letters were sent to several large European food companies, such as Findus, Lavazza, Ferrero, and Danish Crown. The contents of the letters, which were mailed from Belgium, were not made public. The blackmailers demanded the equivalent of EUR 300,000, to be paid in the bitcoin cryptocurrency. They threatened that, if the demand was not met, they would contaminate food in shops with oleandrin, a heart-affecting toxic substance extracted from the oleander plant.^{86,87}

Gary Gravelle (aka Roland Prejean), a member of an American white separatist organisation, was arrested in September 2018 for sending a large number of threatening letters that contained talc powder, which is harmless. His threat letters claimed that the powder was anthrax; as one of the addressees, President Trump's life was also threatened. Gravelle was convicted in 2013 for making similar threats and had already served a prison sentence for the same type of crime.⁸⁸

Companies located in a business park in Frösön, in northern Sweden, have repeatedly received powder letters in recent years. Both technology and mail order companies are among the tenants of the business park. In October, at least one person came in contact with powder from a leaking mail item, so that

⁸⁴ Leisha Santorelli, Is China losing the battle against an incurable pig virus? BBC News, 2019-04-25.

⁸⁵ Liu Zhen, Chinese gangs purposely infecting pigs with African swine fever so they can buy cheap, and sell the meat as healthy stock, *South China Morning Post*, 2019-12-16.

⁸⁶ Anonymous, Italian coffee and chocolate makers receive poisoning threat in powder attack, *The Local*, 2019-04-08.

⁸⁷ Anonymous, Utpressningsförsök mot stora europeiska livsmedelsföretag, *ATL Lantbrukets affärstidning*, 2019-04-26.

⁸⁸ Tamar Lapin, Connecticut man indicted for allegedly threatening to kill Donald Trump, *New York Post*, 2019-05-12.

implementation of security measures was needed until police had determined that the powder was harmless. In 2016, a couple of letters containing cyanide salt were mailed to a company based in the same business park.^{89, 90}

Natural occurrence of bioterrorism-related agents

In one aspect, biological materials are very different from chemical and radiological materials, as natural outbreaks caused by biological agents happen all the time around the world. It is possible to acquire infectious agents from these outbreaks for those who are in possession of the relevant competence. A malevolent actor who possesses a potent biological agent and is capable of, for example, cultivating and spreading the agent, and has a desire to cause harm to other people, or to animals or plants, may be a potentially lethal threat. The next paragraph provides an overview of some natural disease outbreaks caused by biological agents that are related to those that are sometimes seen as potential bioterror agents.

The Ebola outbreak in the eastern part of the Democratic Republic of the Congo has plagued the population of the region throughout 2019. Official figures state that the outbreak has over 3,400 confirmed cases, of which 2,250 victims have lost their lives, thus resulting in a death rate of about 65%.⁹¹ One of the reasons for the longevity of the outbreak is attributed to the fact that international health care personnel and relief workers are under a difficult security situation in the area.⁹²

Another deadly, recurring viral disease is caused by Nipah virus, which has annual outbreaks in Bangladesh and its neighbouring countries. Since 1998, approximately 700 persons have been victims of the disease. The mortality rate has so far been between 40% and 75%.⁹³ A handful of fatal cases were reported in Bangladesh in March 2019.⁹⁴

According to a new report, between 20,000 and 100,000 animals (both wild and domesticated) are affected annually by anthrax and about 1.8 billion

⁸⁹ Bengt Eriksson, Misstänkta brev innehöll cyanid, SVT Nyheter Jämtland, 2016-03-17.

⁹⁰ Magnus Normark, Anders Lindblad, Björn Sandström, Anna-Karin Tunemalm och Per Wikström, CBRN-hot från ickestatliga aktörer - Årsrapport 2016, FOI-R--4424--SE, December 2016.

⁹¹ World Health Organization, Ebola health update – Democratic Republic of the Congo, 2020-02-03.

⁹² Catherine Soi, Ebola outbreak: Security concerns limit progress, Al Jazeera, 2019-12-02.

⁹³ World Health Organization, Nipah virus, 2020-02-03.

⁹⁴ Robert Herriman, Nipah virus reported in Thakurgaon, Bangladesh, Outbreak News, 2019-03-04.

people live in the areas where these outbreaks occur.⁹⁵ The human cases are relatively rare, but most often occur from contact with infected animals and infected meat.

The first three cases in Sweden of the prion disease called Chronic Wasting Disease (CWD) were confirmed during 2019. CWD affects members of the deer family; the three cases were relatively older female moose, and verified as infected with the atypical variant. Classical CWD is found mainly in North America and is contagious when prions are excreted in saliva, urine, and manure, while the atypical variant, found in the Scandinavian countries and mainly affecting older animals, is considered to have more limited infectivity. The Swedish National Veterinary Institute (SVA) considers that the risk of infections in humans is very low, but it cannot be completely excluded.^{96, 97} Prion diseases such as CWD; mad cow disease, which affects livestock; and Creutzfeldt-Jakob disease, which affects humans; are all incurable.

⁹⁵ 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.

⁹⁶ SVA, Avmagringsjuka (CWD) upptäckt på älg i Norrbottens län, 2019-03-26.

⁹⁷ SVA, Troligen nytt fall av avmagringssjuka (CWD) på älg i Arjeplog, 2019-09-18.

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