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July 2023 marked a significant step in global disarmament as the United States finalized the dismantling of its chemical weapons stockpile. While progress has been made, abandoned and outdated chemical arsenals still linger, prompting discussions among nations involved in owning or housing such weapons, albeit at a sluggish pace. The persistent use of chemicals for various purposes continues to pose a threat of chemical terrorism, alongside warnings about the potential resurgence of chemical weapons.

The Chemical Weapons Convention (CWC) has largely succeeded in achieving chemical disarmament, now pivoting towards refining its verification procedures and prioritizing relevant inspections. However, it also needs to fulfill other obligations, such as fostering international cooperation and providing assistance, crucial components integral to the convention. Efforts to promote peaceful uses of chemistry are underway but may require acceleration.

In parallel, the Biological Weapons Convention (BWC) continues to convene meetings and conferences as scheduled, despite administrative limitations. However, advancements in biotechnology consistently challenge the effectiveness of the convention. Recent conflicts have seen disputes regarding compliance with the BWC, aggravated by the absence of infrastructure and geopolitical complexities hindering verification efforts.

In his article, Rajiv Nayan explores the completion of the US chemical disarmament and its implications for international law, while Animesh Raul provides an in-depth view of the cyber-biosecurity landscape, particularly concerning India's biomedical institutions. Anshu Joshi delves into the intersection of technology and terrorism, highlighting how it reshapes global politics and the emergence of new forms of power and threats. Additionally, Rohit Sharma analyzes the declassified report on potential connections between the Wuhan Institute of Virology and the origin of the COVID-19 pandemic, released by the US Office of the Director of National Intelligence

This issue of the CBW Magazine also comprises other features like Chemical-Biological News. With our readers' feedback, we wish to publish issues in the future that focuses on a subject of particular concern. Kindly address contributions and feedback to: cbwmagazineeditor@gmail.com.

The Chemical Disarmament and the United States

Rajiv Nayan

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Summary

The United States, having been the sole country indicating its struggle to eliminate its declared chemical weapons within the set timeframe, declared on July 7 that it had successfully destroyed the last munition in its outdated stockpile of such weapons. This accomplishment marked the meeting of a revised deadline that had been extended multiple times. The significance of eradicating this final unit of chemical arsenals lies in the restoration of the Chemical Weapons Convention's legitimacy and credibility. Doubters from various groups had been raising concerns about a member state of the CWC failing to fulfill its fundamental obligation.

On July 7, 2023, finally, the world finally received the much-awaited news that the last unit of remaining declared chemical weapons had been eliminated. The US was the country to do so. The other countries, that had declared their chemical arsenals, had already reported the completion of the destruction of their arsenals. The US was the only country that had expressed its inability to complete the destruction of its declared chemical weapons on time. On July 7, it announced: "The final munition in the nation's obsolete stockpile of chemical weapons has been safely destroyed."¹ So, finally, it met the revised deadline, which was extended a few times. What is the significance of the elimination of this last unit of chemical arsenals?

As of 7 July 2023



Stockpile Destruction

World's declared chemical weapons stockpiles destroyed: 100%

Total declared stockpiles of chemical agents: 72,304 metric tonnes

Total destroyed stockpiles of chemical agents: 72,304 metric tonnes

Source: <https://www.opcw.org/media-centre/opcw-numbers>



Chemical Weapons Production Facilities (CWPF)

Declared: 97

Destroyed: 74

Converted for peaceful purpose: 23

Remaining inspectable facilities/sites: 4

States with inspectable facilities/sites: 3

Inspections since EIF: 523

Source: <https://www.opcw.org/media-centre/opcw-numbers>

The legitimacy and credibility of the Chemical Weapons Convention (CWC) is restored. Sceptics belonging to different communities were questioning the non-fulfilment of the basic obligation by a member state of the CWC. All the members of the convention are supposed to destroy their chemical arsenals. As per Article 1.2 of the CWC “Each State Party undertakes to destroy chemical weapons it owns or possesses, or that are located in any place under its jurisdiction or control, in accordance with the provisions of this Convention.”² The Article 1.4 demands from a state party “to destroy any chemical weapons production facilities it owns or possesses, or that are located in any place under its jurisdiction or control”³

Under Article IV of the CWC, each member state declared whether it possessed a chemical arsenal. If a country possessed chemical weapons, it had to declare the

‘aggregate quantity of each chemical declared’. The country also had to declare the exact sites of its chemical weapons stowage facilities. Each facility’s inventory was also to be declared under the CWC. The Convention details other steps and provisions regarding the declaration of chemical munitions.

Part V of the CWC has a provision for the submission of general plans for destruction. This part requires that the state party of the CWC submit their annual plans and reports for destruction. It also talks about general tenets for the destruction of chemical weapons production facilities. Article 6 in this part lays down that “For each chemical weapons production facility, a State Party shall supply the following information: Envisaged time-frame for measures to be taken; and Methods of destruction”

For ‘detailed plans for destruction’ of chemical weapons, Article 32 of part V lays down “Not less than 180 days before the destruction of a chemical weapons production facility starts, a State Party shall provide to the Technical Secretariat the detailed plans for destruction of the facility, including proposed measures for verification of destruction ... with respect to, inter alia: Timing of the presence of the inspectors at the facility to be destroyed; and Procedures for verification of measures to be applied to each item on the declared inventory.” The subsequent article 33 has other related details. The Organisation for the Prohibition of Chemical Weapons (OPCW), the institution set up for the implementation of the CWC coordinated the destruction process and dealt with the deadline(s) with the chemical weapons possessor countries.

As mentioned, a member state, under the CWC, is obliged to declare whether it has chemical arsenals or not. As discussed, the

CWC has several articles devoted to describing the declared arsenals. A few members declared that they had possessed chemical arsenals, and gradually started destroying their arsenals. India, Libya, Russia, the US, South Korea and Albania were the countries that had filed declarations for possessing chemical weapons in the first batch. Later, Iraq and Syria were added to the list and their arsenals were also destroyed. As of December 31, 2021, all eight countries—Albania, India, Iraq, Libya, Russia, Syria, and the US, which disclosed their chemical arsenals had a total of 72,304.343 metric tons of Category 1 and Category 2 chemical weapons, along with 417,833 items of Category 3 chemical weapons.⁴

The CWC obligated these countries except Syria (which joined the Convention later and resultantly, declared its arsenals late) to destroy their arsenals within 10 years of the entry into force of the convention. The original deadline for the complete destruction of chemical weapons for all the possessor countries who had declared their stockpiles was April 29, 2007. When the destruction process started, the chemical weapons countries started finding complications in destroying their arsenals. These countries realised their inability to complete the destruction process as per the schedule. They assessed that they would miss the deadline. The countries that felt like missing the deadline asked for the deadline. Assessing the requirements, the OPCW extended the deadline which was different for different countries. The US, Russia and Libya had to complete their destruction process by April 29, 2012.

The US and the Destruction of its Chemical Stockpile

The US along with Russia was known in the world as the possessor of chemical weapons.

Other countries made the world know about their arsenals as part of their obligations to the CWC. Russia and the US were also the largest possessors of chemical weapons in the world. In fact, the two countries missed even the new deadline—April 29, 2012. They cited the large chemical weapons stockpiles and associated complications as the primary reason for missing the deadline. By 2023, Russia destroyed all the chemical weapons from its stockpile.

The US took a long to complete the task. It had been given another extension to complete the destruction work by 2023, which eventually it did. The Chemical Demilitarization (Chem-Demil) Programme, which had been started in 1985 by the US government, was entrusted with the task of destroying the US chemical weapons stockpile exceeding 31,000 tons. The US government claims that the country had begun the process of chemical weapons destruction in 1990 even before the CWC was concluded in 1992 or entered into force in 1997. The Chem-Demil later gave way to the Chemical Materials Agency. The agency along with the Assembled Chemical Weapons Alternatives mainly undertook the destruction work of chemical weapons through incineration and neutralisation afterwards.

As the chemical arsenals were to be destroyed in different phases, the US struggled to complete the intermediate stage and had to take an extension. It was given an extension to complete the intermediate phase destruction by December 2017. It was supposed to destroy 45 per cent of its stockpile by 2004. However, the US government informed that despite all difficulties, it was able to destroy 8,691 tonnes of chemical weapons which constituted 27.6 percent of the American chemical weapons stockpile by March 2004.

The US succeeded in destroying 45 per cent of its arsenals by December 2007.⁵

The General Accounting Office (GAO) records: “The delays stem from incidents during operations, environmental permitting issues, concerns about emergency preparedness, and unfunded requirements.”⁶ However, the same report also puts the blame on the management structure of the programmes which had been assigned the responsibility of destroying the chemical weapons stockpile.

The US’s inability to destroy the chemical weapons stockpile and not meeting the deadlines had raised several doubts in the international community. The US went for massive confidence-building measures and Public relations exercises over the years to instil confidence and allay apprehensions in the international community. The delegation after delegation visited the last remaining sites to know the status. Through these goodwill visits the US conveyed its seriousness about the chemical weapons stockpile destruction to the world. The OPCW, too, helped it by publishing the gradual destruction of its chemical stockpile in its different reports. Even the team from OPCW and its member states visited the chemical weapons sites and provided their feedback.

Now the international community has entered into a new phase. Even if it is not a post-chemical disarmament phase, certainly, it is now a post-destruction phase. The destruction of the chemical stockpile was the most important task for the OPCW to fulfil the mandate of the CWC, which has other provisions, too. That chemical rearmament does not take place is being talked about. Related to it is the apprehension of terrorists acquiring low-technology, low-cost options in chemical agents. The member states of

the CWC are to be extended assistance for chemical security and safety.

However, equally significant is the task of international cooperation for peaceful uses of chemistry. During negotiations for the treaty, international economic and technological development cooperation figured quite prominently. The CWC has an article XI for the purpose. After the destruction, the OPCW and the member countries need to focus on implementing Article XI of the Convention. In fact, the global south has been quite vociferous in demanding the implementation of the treaty. In the past, the OPCW organised a few workshops and meetings to implement the articles. Now the developed countries led by the US need to become active to promote international cooperation for peaceful chemistry.

Thus, the destruction of the last chemical weapons has reposed faith in the multilaterally negotiated disarmament instrument. Multilateralism along with the spirit of international cooperation has triumphed. The tool of verification- a salient feature of the CWC may be used to reassure the world that there is no chemical rearmament. All the member states may have to work towards it. Similarly, the spectre of chemical terrorism is also to be countered unitedly by the member countries. The post-destruction phase is not the end of the OPCW or the CWC. It is going to set new priorities and challenges. The international community should brace itself for it.

Endnotes:

¹ <https://www.defense.gov/News/Releases/Release/Article/3451920/us-completes-chemical-weapons-stockpile-destruction-operations/>

- ² <https://www.opcw.org/chemical-weapons-convention/articles/article-i>
- ³ <https://www.opcw.org/chemical-weapons-convention/articles/article-i>
- ⁴ <https://www.opcw.org/sites/default/files/documents/2022/12/c2704%28e%29.pdf>
- ⁵ https://www.army.mil/article/3736/u_s_army_reaches_45_chemical_weapons_convention_destruction_milestone
- ⁶ <https://www.gao.gov/assets/gao-04-634t.pdf>

Navigating the Cyber-Biosecurity Landscape: A National Security Imperative for India

Animesh Roul

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Summary

The shifting terrain of national security threats has broadened to include not just traditional geopolitical and military risks, but also challenges emerging from the realms of cyber and biology, forming what is termed as cyber-biosecurity. This novel idea of cyber-biosecurity arises as a blend, combining the swiftly merging fields of cybersecurity and biosecurity. While each area has previously had its distinct focus and specialized knowledge, the changing landscape shows that they are progressively intertwining in intricate and impactful ways.

The ever-evolving landscape of national security threats has expanded to encompass traditional geopolitical and military risks and challenges arising from the cyber and biological domains termed cyber-biosecurity. This hybrid concept of cyber-biosecurity emerges as an innovative fusion, encapsulating the rapidly converging disciplines of cybersecurity and biosecurity. While each domain has historically commanded its attention and expertise, the evolving landscape reveals they are increasingly intersecting in complex and consequential ways.¹ Such a confluence produces new challenges that can remotely disrupt biomedical and bio-industrial processes, compromise digital health records and medical devices, and even jeopardize high-containment laboratories (e.g., BSL-3 or BSL-4). This amalgamation extends the horizon of vulnerabilities, manifesting multifaceted risks that traverse critical sectors, including manufacturing, emergency medical systems, public health, healthcare, the biochemical industry, food production, agriculture and eventually, national security. Undoubtedly, the COVID-19 pandemic has helped raise awareness about biosecurity and public health to a reasonable extent in India and the region. **This commentary aims to provide an overview of the cyber-biosecurity landscape, identifying the challenges and opportunities it presents for India's biomedical Institutions, including hospitals, laboratories and pharma companies. It also underscores India's vulnerabilities and strategic imperatives in this new frontier of security.**

The integration of cybersecurity and biosecurity is a critical issue that is coming to the forefront, especially as healthcare

infrastructures, among other critical life science and biotechnological sectors, become susceptible to cyber threats. Within the Indian context, this vulnerability manifested in the escalating number of cyber-attacks on healthcare institutions and pharma laboratories. Data collated by cybersecurity agencies in India indicates that from January to November 2022 alone, approximately 1.9 million cyber-attacks targeted India's healthcare systems, making hospitals easy targets for cybercriminals.² The suspected ransomware attacks on the country's premier hospitals, such as All India Institute for Medical Science (AIIMS), have become a regular affair, primarily disrupting the online services and theft of patient data. In November 2022 and June 2023, ransomware attacks were detected at two major hospitals, AIIMS and Safdarjung Hospital in New Delhi.³ Although they successfully recovered their compromised databases, challenges and vulnerabilities remain, especially in its digital services. In June 2023, a major leak of CoWIN data via the Telegram app was reported. This data leak exposed several personal and health details, including names, Aadhaar IDs, mobile numbers, voter IDs, passports and COVID vaccination status of high-profile individuals, including politicians, industrialists and business people.⁴

In late November 2022, over 6,000 attempts were made by a Hong Kong based entity to hack the server of the Indian Council of Medical Research (ICMR), the apex body in India for biomedical research. Fortunately, the ICMR server remained secure due to enhanced security measures and a robust updated firewall.⁵ Ransomware attacks were reported on the burgeoning Pharma companies in India, too. In late March this year, one of India's largest drug manufacturers, Sun Pharma's operations, was affected due to a ransomware attack.

The attack breached file systems and stole company as well as personal data.⁶ Similar ransomware attacks were reported from Ipca Laboratories and Aarti Drugs Ltd in September 2022. Both suffered data theft and extortion from the BianLian ransomware group, which demanded a huge amount of money for the decryption key, and it put up part of the stolen data for sale on the dark web.⁷

Indeed, biomedical institutions, especially the top hospitals (like AIIMS) where political and business elites have their health records, have become lucrative targets for state-sponsored or non-state cybercriminals. The increased digitization of medical records and reliance on online systems has amplified the risks multifold. Previously, in India, several notable cyber incidents have impacted the healthcare sector, emphasizing hospitals, laboratories, and related institutions. One of the major ones was the WannaCry Ransomware Attack in 2017. This was part of a worldwide cyberattack which affected institutions across India, including healthcare entities, power grids and banks.⁸ The malware had encrypted files and demanded a ransom in Bitcoin for decryption. It reportedly caused major disruption of patient care services, financial loss, and potential compromise of patient information. Though the attack was not focused towards health and biotech industries, the footprint was spread across sectors, especially digitized (internet and computers) organizations.

The above events suggest that cyberattacks exacerbated vulnerabilities and compromised millions of sensitive medical and personal data, causing substantial financial losses and unprecedented disruption in healthcare services. Arguably, the vulnerability of the biomedical sector to cyber threats in India highlights the need

for stronger cybersecurity measures, comprehensive regulations, and robust incident response mechanisms. Continued investment in security infrastructure, security audits in regular intervals, multi-factor authentication, employee training, and collaboration with cybersecurity experts are vital to protecting the health data and critical services provided by the healthcare and life science sectors. The AIIMS incidents indicate a pattern of risks common to healthcare institutions worldwide. They reflect the growing importance of cybersecurity in healthcare, where patient data, research, and day-to-day operations are increasingly digital and interconnected.

Countries like the United States, Israel and a few European countries have already started or are in the process of integrating cyber-biosecurity into their national security strategies. The rise of state-sponsored cyber-attacks and the proliferation of biotechnologies necessitate a unified approach to these challenges. Despite the stepped-up measures, ransomware attacks in the US disrupt healthcare services regularly.⁹

This vulnerability is particularly concerning in light of India's ambitious drive to digitize healthcare, which is now being impeded by recurrent cyberattacks. Cybersecurity experts have sounded the alarm over the insufficient resilience of healthcare cybersecurity systems and the absence of stringent data protection legislation. While cybersecurity has primarily fallen on individual healthcare institutions, there is a growing argument that safeguarding such a vast corpus of sensitive data should be a government or national responsibility.

Emerging technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), and advanced biotechnologies create new opportunities and vulnerabilities. These

technologies can be weaponized to create sophisticated threats that exploit vulnerabilities in both digital and biological spheres.

In this intricate landscape of technology and security, manoeuvring cyber-biosecurity challenges becomes a non-negotiable national imperative for India. The country is not merely a rising technological powerhouse but also a state entangled with various biosecurity complexities. Addressing these challenges necessitates a multi-layered approach that includes robust cybersecurity frameworks, regular security assessments, specialized staff training, and deploying cutting-edge security technologies. As the sectors of public health, manufacturing, emergency medical services, and national defense, among others, come under the widening ambit of cyber-biosecurity threats, the call for a fortified security posture is not just timely; it is critical for both the healthcare organizations and the nation at large. India has established agencies like the Indian Computer Emergency Response Team (CERT-In) and the National Critical Information Infrastructure Protection Centre (NCIIPC) for cybersecurity. The ransomware attack on the AIIMS recently prompted the government to formulate a national cybersecurity response framework (NCRF).¹⁰

Conclusion

The overall biosecurity framework remains fragmented and less prioritized in India. This underscores the immediate necessity for healthcare organizations to bolster their cybersecurity defenses. Nonetheless, a centralized, government-led approach to enhance the nation's cyber-biosecurity infrastructure across critical sectors is indispensable for India's long-term resilience and technological ambitions. The country's goals of becoming a global leader in

technology and healthcare hinge on its capability to safeguard cyber and biological assets. Therefore, cyber-biosecurity should not merely be viewed as a health or economic issue but as a priority for national security.

Endnotes:

- ¹ For better understanding of this emerging hybrid concept, See, for example, Dov Greenbaum (ed), *Cyberbiosecurity: A New Field to Deal with Emerging Threats*, Springer, 2023. Also, Jean Peccoud, Jenna E. Gallegos, Randall Murch, Wallace G. Buchholz, Sanjay Raman, "Cyberbiosecurity: From Naive Trust to Risk Awareness", *Trends in Biotechnology*, Vol. 36 (1), 2018, pp. 4-7, <https://www.sciencedirect.com/science/article/pii/S0167779917302767>
- ² "Indian healthcare system needs robust cybersecurity infra. Here's what experts say", *Livemint*, April 23, 2023 <https://www.livemint.com/news/india/india-healthcare-system-robust-cybersecurity-infrastructure-aiims-cyberattack-safdarjung-hospital-sun-pharma-cyberattack-11682223039473.html>
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- ⁶ "Sun Pharma says revenue may decline as operations hit due to ransomware attack", *Indian Express*, March 27, 2023, <https://indianexpress.com/article/business/companies/sun-pharma-revenue-operations-ransomware-attack-8520897/>
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- ⁸ "WannaCry did hit India and even central govt portal. So why did Centre downplay the ransomware attack?", *India Today*, June 19, 2017, <https://www.indiatoday.in/mail-today/story/ransomware-wannacry-cyberattack-global-ransomware-attack-india-983427-2017-06-19>
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- ¹⁰ "AIIMS ransomware attack led to new SOP on cyber breaches: Ex-cybersecurity chief Pant," *Hindustan Times*, July 02, 2023, <https://www.hindustantimes.com/india-news/aiims-ransomware-attack-led-to-new-sop-on-cyber-breaches-ex-cybersecurity-chief-pant-101688321198625.html>

Creating a comprehensive defence against biological weapons

Anshu Joshi

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Summary

Following the unprecedented impact of the worldwide spread of COVID-19, there's a newfound global awareness regarding the potential havoc that biological agents can wreak if employed for destructive purposes. The rapid advancements in technology have empowered both governmental bodies and non-state groups, including terrorist organizations, to harness more affordable, highly effective, and easily deployable 'sophisticated' biological weapons. The fusion of modern technology with terrorism has presented a significant challenge, particularly for nations like India that advocate for global peace and security. Terrorism has added layers of complexity and altered the dynamics of global politics, ushering in a new paradigm of power while also introducing new threats.

After facing the unprecedented implications of the global spread of COVID-19, the world now understands how biological agents, if used for violent purpose, can create a havoc. The exponential advancements in technology have enabled both state and non-state actors (terrorist organizations) to use 'sophisticated' biological weapons that are cheaper, more effective and are easy to use. The question remains, how to contain the challenge of bioterrorism?

The concoction of new technology and terrorism has created a potential challenge for countries like India that promote global peace and security. Terrorism has complicated the complexity and dynamics of world politics; this world depicts new concept of power as well as new threats. This is the time when we can clearly see a deadly combination of political ambitions and new technology taking new shapes in the context of terrorist organizations. Anthrax attacks in the United States following 11 September 2001 terrorist attacks, use of biological weapon in Japan by Aum Shinrikyo group in 1995-96, and the use of chemical weapons agents in Syria have reinforced the threat. While most of the nations have repeatedly condemned the use of biological weapons, many of them still continue to have stockpiles. Also, we also confront the possibility of biological weapons use by non-state actors or terrorist organizations. For a country like India that is combating against the terror attacks since a long time, it becomes very important to focus on the challenge of bioterrorism and possible solutions to counter against the threat of bioweapon use by terrorist organizations.

First of all, we need to understand that why there is a possibility that such weapons can

be used by terrorist organizations. In recent years, the incredible advancements in technology, availability of dual-use technologies, materials and information associated with the production and delivery of biological weapons has aggravated the proliferation problem. Also, because of the latest technology and internet, these weapons are easy to develop and cost effective. These all factors have increased their attractiveness to proliferant states as well as non-state actors that cannot afford to develop and use advanced conventional or nuclear weapons.

It is important to understand what are biological weapons and how are they used. Biological warfare is the use of living organisms or their byproducts (toxins) to cause physical harm. Biological weapons are basically the disease-causing microorganisms and toxins. When these biological weapon agents enter the body (it could be human, animals or plants), they infect the individual, multiply and then cause the symptoms of the disease they carry. If the disease is contagious, the effects can be more devastating. Toxins, which have biological origin, but possessing certain chemicals traits, can affect the target immediately. Biological weapons can have destructive effects on all kinds of biodiversity, including humans, animals, plants, and other life. They can also be used against resources, such as water or food supplies. Corona virus is a classic example to understand the scale and speed of effect of biological agents.

Biological and chemical weapons were used in World War I and World War II; however, most of the countries then banned these weapons on ethical grounds. But in today's time, when terrorism poses a potential challenge of using unconventional methods to terrorize people, we cannot deny the possibility of their usage by terrorist organizations.

Today, many chemical or chemical-based companies can make biological weapons. Any state with advanced biotechnology facilities can also develop biological weapons. Increasing role of regional powers, high ambitions of terrorist organizations and more involvement of multi-national corporations in world politics increase the possibility of dual usage of technologies and their transfer to the attacker. Although, there has been growing debates over the idea of terrorists using these unconventional weapons and causing havoc, we can see their usage in recent times. The Anthrax letters were posted in the United States soon after 9/11 attacks. Aum Shinrikyo group's attack in Japan is another important example. In March 1995, members of a Japanese religious cult, the Aum Shinrikyo, released the chemical agent Sarin in the Tokyo subway. The Sarin was produced by this group only. This act killed nineteen people and injured several hundred. The group also had attempted to produce biological agents and tried to use the same in Tokyo and other nearby areas between 1990 and 1994.¹ However, creating panic was the real impact that this attack caused. The Aum Shinrikyo group also used Botulin in June 1994 in another Japanese city that caused several deaths.

Till today, it is norms building procedure that has been considered the most significant approach to check the use of biological weapons. The first international treaty in modern law banning the use of biological weapons was the 1925 Protocol or the Geneva protocol that prohibited the use of asphyxiating, poisonous or other gases, and bacteriological methods of warfare. Negotiated under the League of Nations after the First World War, the Geneva Protocol had significant shortcomings as its prohibition did not cover production, development and stockpiling of biological and chemical weapons, and many countries held in

reserve the right to develop biological weapons. The growing need of a more comprehensive treaty gave birth to the 1972 Biological and Toxic Weapons Convention (BTWC) Convention to prohibit development, production and stockpiling of biological and toxin weapons. Unlike the Geneva Protocol's restrictions only on use, the BTWC is a far more comprehensive treaty. It bans development, production and stockpiling, acquisition or retention of biological agents or toxins. The ban also extends to means of delivery designed to use such agents or toxins for hostile purposes or in armed conflicts. Later separate Chemical Weapons Convention (CWC) and Biological Weapons Convention (BWC) came in to existence.² But so far, due to certain shortcomings related to BWC, a full-proof defence against biological weapons could not be ensured.

First of all, BWC does not provide for any full-proof verification regarding the peaceful or defensive usage of the technology related to biological weapons given that the dual-use nature of technology that can produce biological agents. Because of the dual-use and covert nature of biological weapons, it is very difficult to differentiate between offensive and defensive technology. And because of this dual use problem, all biodefence research cannot be banned or stopped. Any development in the biotechnology and genetic engineering such as the development of a new medicine, vaccine or a new genetic advancement can be applied to combat against biological weapon attack. However, at the same time, the same technology can be used to develop the biological weapons, and it is not possible to differentiate between the two.

Then, it is practically impossible to involve terrorist organizations into a norm building procedure. Hence, we need a holistic approach to counter against bioterrorism.

Since the bioterrorism threatens the security of civilians and public property, it is essential to develop a strong civil defence against bioterrorism. It involves lots of cooperation, latest technology and of course, huge funding, especially for a hugely populated country like India.

First of all, we need to see the challenge of bioterrorism from a realistic perspective. We cannot consider this threat as a fallacy anymore and a holistic defence system is the need of the hour to ensure national security and promote world peace.

For a country like India, it has become crucial to establish a potential defence against biological weapons as the threat of use of biological weapons comes from both, state as well as non-state actors. To meet with this challenge, The Indian government has established Nuclear, Biological and Chemical (NBC) warfare directorates to monitor nuclear, biological or chemical weapon attack. Indian government has also established a Nuclear, Biological and Chemical (NBC) cell at Army Headquarter to study the effects of NBC warfare and to prepare an appropriate defence system against it. The Defence Research and Development Organization (DRDO) is involved into research and development of new technologies to detect and protect against biological weapon attack. It focuses on using latest technology to design and manufacture protective clothing and equipment for military personals. However, it is still limited to military purpose and civilian security using such kind of clothes and equipment is not in the focus. And, seeing the budget it involves, it is not practically feasible also to use such technology for civil defence. After all, how many masks or suits can be distributed in a hugely populated country like India? The Defence Research and Development Establishment (DRDE) at Gwalior is established to perform research and

development related to toxicology and biochemical pharmacology. It also works to develop antibodies against several bacterial and viral agents.³

There are various vaccination programmes that the government supports to increase immunity against various organisms, which could also be used as a biological weapon by terrorist organizations. However, there are no awareness programmes to make common man aware of biological weapons and bioterrorism. Although wrong information or uncontrolled information can create a panic among people, however creating general awareness is significant to establish a potential civil defence against bioterrorism. Here, the role of media becomes very crucial. During Mumbai attacks, we all witnessed how the presence of media complicated the issue. Media needs to be very careful while deciding the limit of the information to be shared in national interest. Also, media needs to be cautious while finalizing the content as it should not cause any panic across the nation. Various general awareness programmes related to biological weapons, their symptoms, their delivery model and so on can be run through print and electronic mediums. People can also be trained through these programmes to identify and respond in case of a biological weapon attack.

In case of a biological weapon attack people might identify the attack too late to use the physical protection. Hence, awareness, immunization and enhanced local public health facilities play an important role. Also, an efficient and clear communication chain across local public health systems, national-level authorities and concerned international organizations can also help in reporting the issue at the earliest.

Various vaccination programs are already been run, and can be run, however there are some challenges too. We have experienced

the same during different waves of COVID-19. First of all, vaccination creates specific or non-specific immunity. The specific immunity can be developed across people by using the vaccines against the agents that are likely to be used in the attack. The non-specific immunity is developed by using broad-spectrum vaccines that can develop immunity against a wide range of agents; however, the time span of such kind of immunity is not very long. Now neither we can make out that which agents can be used for a terror attack nor we can get to know the time of the attack to use the broad-spectrum vaccines. Secondly, vaccination programmes, for a hugely populated country, need a huge funding. From research and development to necessary trials and production, huge funding is required. Here, the role of various international organizations becomes significant. Today, apart from state-sponsored vaccination programmes, many international organizations like World Health Organization (WHO) and corporate organizations are providing their support in running vaccination programs across the globe.

Then comes an advanced public and community health system. For developing a strong public health system against biological weapon attack, various parts of society at various points have to be involved. From the public health perspective, we need to ensure that we are laced with appropriate detection systems, advanced diagnostic techniques, sufficient stocks of various medicines and vaccines, efficient communication systems, and sufficient training of doctors and other health care workers. Then, the essential medicines and vaccines are also needed to be stored so that they can be distributed to large numbers of people on a short notice.

As the vulnerability of a biological weapon attack cannot be checked, we can enhance our preparedness and capability to fight

against bioterrorism. By creating general awareness against bioterrorism, enhancing emergency medical facilities and supporting research and development related to biodefence techniques, a comprehensive defence against bioterrorism can be developed. These measures can also help in combating against naturally occurring epidemics and in ensuring well-being of citizens. As the objective of an attacker is difficult to identify, we can enhance our preparedness and preventive means to mitigate the risk of biological weapon attacks.

Today, the threat of bioterrorism has been taken increasingly seriously by international community. Despite all normative and technological efforts, problem in detection and weak prevention strategies is one another major challenge to create a potential defence against bioterrorism. Local, national and international cooperation is essential to develop a strong communication and support mechanism against bioterrorism. The challenge is also to provide appropriate education to people about the type, symptoms and possible mode of attack of biological weapons, and different resources available to provide their support with the primary-level response to such attacks.

Today, our lives and the global security are clearly vulnerable to the looming threat of highly advanced and genetically modified biological weapon agents. We certainly need a holistic defence against the devastating effects of biological weapon attack. We can develop a potential and comprehensive defence against the use of biological weapons by using latest technologies, increasing general awareness, strengthening public and community health systems, developing improved immunization and by strengthening norms and international cooperation.

Endnotes:

- ¹ "The Sarin Gas Attack in Japan and the Related Forensic Investigation", 1 June 2001, OPCW Website, <https://www.opcw.org/media-centre/news/2001/06/sarin-gas-attack-japan-and-related-forensic-investigation>
- ² Reports and data from United Nations Office for Disarmament Affairs, <https://disarmament.unoda.org/biological-weapons/CWC>
- ³ Reports and data from Defence Research and Development Organization (DRDO) website, <https://www.drdo.gov.in/>

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1. Reports and data from Nuclear Threat Initiative Website (DRDE).
2. Chemical and Biological Warfare Studies No.12, SIPRI, Oxford University Press, 1991.
3. Zanders Jean Pascal, John H., "Chemical and biological weapon developments and arms control", SIPRI, Oxford University Press, 1997.
4. Raymond A. Zilinskas (ed.), Biological Warfare: Modern Offence and Defence, Lynne Rienner Publishers, London, 2001.

Assessing the Origins of COVID-19: Insights from the US Intelligence Community

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Summary

The US intelligence community unveiled a declassified report, titled "Potential Links Between the Wuhan Institute of Virology and the Origin of the COVID-19 Pandemic". This legislation mandated the US Intelligence Community to disclose information regarding potential connections between the Wuhan Institute of Virology (WIV) and the genesis of the COVID-19 pandemic. The report detailed the intelligence community's comprehension of the WIV, its capabilities, and the actions conducted by its personnel in the period leading up to and during the initial phases of the COVID-19 outbreak. Interestingly, there appears to be a lack of consensus within the intelligence community on this matter. While four agencies lean towards the belief that the virus was transmitted from animals to humans, the Department of Energy and the Federal Bureau of Investigation (FBI) conclude that the virus originated from a "laboratory-associated incident," though for differing reasons. However, all agencies' assessments highlight that SARS-CoV-2 was not engineered as a biological weapon.

In June 2023, the US intelligence community released a declassified report that presented its assessments regarding the ongoing controversy surrounding the origins of the COVID-19 pandemic. The report, titled "Potential Links Between the Wuhan Institute of Virology and the Origin of the COVID-19 Pandemic," was declassified and made public by the Office of the Director of National Intelligence in response to the COVID-19 Origin Act of 2023. This act mandated the U.S. Intelligence Community disclose information about potential links between the Wuhan Institute of Virology (WIV) and the origin of the COVID-19 pandemic. The report was prepared by the National Intelligence Officer for Weapons of Mass Destruction and Proliferation, which was coordinated with the intelligence community.

The institute in Wuhan has become a contentious topic in discussions surrounding the origin of the COVID-19 pandemic. For over three years, inquiries into the origins of the virus have revolved around two competing theories: one suggesting a natural transmission from infected animals to humans, and the other suggesting a "lab leak" scenario. The latter theory suggests that the virus accidentally escaped from a laboratory where researchers were studying coronaviruses, with Wuhan, China, being the likely location, given that it was the first reported cite of highly contagious respiratory illnesses in December 2019.¹ Nevertheless, the report has not furnished conclusive evidence regarding the origin, and it appears that the intelligence community itself is divided on the matter.

Declassified report

The report has outlined the intelligence community's understanding of the WIV, its

capacities, and the activities undertaken by its personnel in the period leading up to and during the initial stages of the COVID-19 pandemic. Interestingly, within the intelligence community, there appears to be a lack of consensus on the matter. The findings reveal that while four agencies are of the opinion that the virus was transmitted from animals to humans, the Department of Energy and the Federal Bureau of Investigation (FBI) assess that the virus originated from a “laboratory-associated incident”, although for different reasons.² However, the assessments from all the agencies emphasize that SARS-CoV-2 was not engineered as a biological weapon.

The report also provided partial details about the WIV stating that while the lab operates independently from the People’s Liberation Army (PLA), the assessment reveals that WIV personnel have engaged in collaborative efforts with scientists affiliated with the PLA in the realm of public health research. They have also collaborated on projects related to biosafety and biosecurity.³

The report also delved into the fact that the WIV likely maintains one of the world’s largest collections of bat samples, facilitating its research on coronaviruses. Furthermore, it mentioned that certain scientists at the WIV have employed common laboratory techniques to modify coronaviruses genetically. However, the intelligence agencies have not come across any information suggesting that the genetic engineering work conducted at the WIV involved SARS-CoV-2 or a closely related precursor of the pandemic source.⁴ The report also highlighted the likelihood of certain researchers in the laboratory not adhering to adequate biosafety measures before the pandemic, particularly when dealing with SARS-like coronaviruses. This oversight could have elevated the risk of unintentional virus exposure.

The report also noted that during the Fall of 2019, a number of researchers within the laboratory fell ill, exhibiting symptoms that were in line with, though not definitively indicative of, COVID-19. Furthermore, the intelligence report also highlighted that the laboratory retains blood samples and health records for all of its personnel. However, the assessment stated that no evidence suggests that any of these researchers required hospitalization due to symptoms consistent with COVID-19.

The report provides fresh perspectives on China’s virus research but doesn’t offer any further clarity regarding the origins of the global outbreak. This leaves the task of deciphering these complexities to experts and scholars. The revelation is unlikely to settle the intense debate surrounding the origins of the pandemic, a contentious issue that has strained relations between Washington and Beijing. To arrive at a definitive conclusion regarding the origins of COVID-19, it is highly probable that China’s cooperation would be essential. Unfortunately, Beijing has persistently impeded global investigative efforts, refrained from sharing critical information, and shifted blame onto other nations.

Why the need for such report

From the early stages of the pandemic, allegations regarding China’s involvement in the origin of the pandemic have consistently resurfaced. The controversial role played by China has been a topic of debate and discussion, especially during the US elections. These discussions have encompassed a wide range of issues, including China’s alleged disregard for biosafety regulations and its potential involvement in weaponizing the virus. The latter aspect, closely associated with a laboratory-related incident, has garnered significant attention, with some viewing it as a credible theory, while others dismiss it as a fringe conspiracy.

Interestingly, the notion that COVID-19 originated in a Chinese lab is not as marginal as some might wish to believe. Many prominent US politicians, including former President Donald Trump's senior officials, have implied that the virus may have originated in a Chinese laboratory. Furthermore, even the FBI's director, Christopher Wray, has stated that the bureau believes COVID-19 "most likely" originated in a laboratory controlled by the Chinese government.⁵

The experimental work conducted at the WIV had raised concerns even prior to the onset of the pandemic. These concerns primarily revolved around the nature of the experiments, especially those falling under the category of research known as "gain-of-function". This type of research also sparked reactions and debates within the United States during the Obama administration. The perceived risks associated with such experiments prompted President Obama to take action in 2014. He instituted a temporary halt on gain-of-function research related to influenza, SARS, and MERS, pending the establishment of a new regulatory framework for overseeing and governing these types of research activities.⁶

To examine the credibility of the accusations against China, the World Health Organization (WHO) dispatched a group of international scientists to Wuhan to investigate the origins of SARS-CoV-2. Their assessment led them to conclude that a laboratory-related incident as the source of the virus was deemed "extremely unlikely".

Upon assuming the role of US President, Joe Biden instructed the intelligence community to initiate an investigation into the origins of the COVID-19 pandemic.⁷ He emphasized his administration's commitment to

uncovering the truth regarding the pandemic's origins and stated that their efforts would continue until conclusive findings were obtained. President Biden also raised concerns about China's unwillingness to cooperate in international investigations and its reluctance to provide access to information.

Conclusion

The release of the declassified report by the U.S. intelligence community in June 2023 shed some light on the contentious issue of the origins of the COVID-19 pandemic. However, it is essential to note that the report did not provide conclusive evidence and revealed a lack of consensus within the intelligence community itself. While some agencies lean towards the theory of natural transmission from animals to humans, others suggest a laboratory leak, albeit for different reasons. Importantly, all agencies emphasized that SARS-CoV-2 was not engineered as a biological weapon.

The report also highlighted certain activities and collaborations at WIV but did not definitively link the institute to the pandemic's origin. Ultimately, this report's release has not clarified the origins of the pandemic and leaves the debate ongoing. It underscores the importance of transparency and international cooperation in addressing global health crises and the challenges of navigating sensitive geopolitical issues in science and public health.

Endnotes:

- ¹ Shane Harris, Dan Diamond and Joby Warrick, New U.S. intelligence report sheds little light on covid origins, 23 June 2023, <https://www.washingtonpost.com/national-security/2023/06/23/covid-origins-us-intelligence/>

- ² Office of the Director of National Intelligence (ODNI), “Potential Links Between the Wuhan Institute of Virology and the Origin of the COVID-19 Pandemic”, 23 June 2023, <https://www.dni.gov/files/ODNI/documents/assessments/Report-on-Potential-Links-Between-the-Wuhan-Institute-of-Virology-and-the-Origins-of-COVID-19-20230623.pdf>
- ³ Ibid., p.3
- ⁴ p.4
- ⁵ BBC, “Covid origin: Why the Wuhan lab-leak theory is so disputed“, 1 March 2023, <https://www.bbc.com/news/world-asia-china-57268111>
- ⁶ Carolyn Kormann, “The Mysterious Case of the COVID-19 Lab-Leak Theory“, The New Yorker, 12 October 2021, <https://www.newyorker.com/science/elements/the-mysterious-case-of-the-covid-19-lab-leak-theory>
- ⁷ The White House, Statement by President Joe Biden on the Investigation into the Origins of COVID-19, 27 August 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/08/27/statement-by-president-joe-biden-on-the-investigation-into-the-origins-of-covid-%E2%81%A019/>

Chemical and Biological News

OPCW Director-General on official visit to Qatar

November 10, 2023

The Director-General of the Organisation for the Prohibition of Chemical Weapons (OPCW), Ambassador Fernando Arias met with H.E. Mr Soltan bin Saad Al-Maraikhi, State Minister for Foreign Affairs of Qatar, on his first official visit to the country from 23 to 24 October 2023.

In Doha, Ambassador Arias also opened the 10th Annual Meeting of Representatives of the Chemical Industry and National Authorities of States Parties to the Chemical Weapons Convention, hosted by the Qatar National Committee for the Prohibition of Weapons (NCPW).

In a keynote address to the Meeting of the Chemical Industry and National Authorities, the Director-General said: “National implementation of the Convention is our first line of defence to prevent the use of toxic chemicals as weapons and their re-emergence.”

“The rapid expansion of chemical industry, both in size and sophistication, and technological and scientific advancements, are already impacting the implementation of the Convention. Knowledge, expertise, and the equipment to use new technologies, are more and more available worldwide, and can be used for illicit purposes,” he added.

The Director-General thanked Qatar for funding and hosting the annual gathering. In his bilateral meetings, he commended the country for the active role it has taken in implementing the Chemical Weapons Convention since its entry into force in 1997.

“I wish to seize this opportunity to thank the Government of Qatar for providing us with this valuable platform for sharing experiences, points of view, and best practices on implementation of the Convention at the national, regional, and global levels.”

The Chairman of the National Committee for the Prohibition of Weapons (NCPW) Brigadier General Dr Abdulaziz Salmeen al-Jabri said that the meeting, which is one of the fruits of the close co-operation between the OPCW and Qatar to implement the Chemical Weapons Convention (CWC), provides a unique global forum for States Parties.

<https://www.opcw.org/media-centre/news/2023/11/opcw-director-general-official-visit-qatar>

Non-EU countries align with Iran & chemical weapons sanctions

October 27, 2023

On October 26, the candidate countries North Macedonia, Montenegro, Albania, Ukraine, Moldova, Bosnia and Herzegovina, and the EFTA countries Iceland, Liechtenstein and Norway aligned themselves with the EU’s maintenance of Iran nuclear weapons sanctions after JCPOA transition day and the amendment to 1 Iran listing amendment.

The same countries as well as Georgia aligned themselves with the EU’s renewal of its chemical weapons sanctions regime until October 2026.

<https://www.europeansanctions.com/2023/10/non-eu-countries-align-with-iran-chemical-weapons-sanctions/>

Rishi Sunak Says AI “Could Make It Easier To Build Chemical Weapons”

October 26, 2023

UK Prime Minister Rishi Sunak has warned against rushing to regulate the rapidly evolving artificial intelligence (AI) before fully understanding it. He said AI has the potential to transform life but it should be a global priority to mitigate the risks of human extinction it could bring, similar to pandemics and nuclear war, according to a *BBC* report. In a speech, the British leader who completed one year in office this week, also announced setting up of world's first AI safety institute in the country.

“Get this wrong, and AI could make it easier to build chemical or biological weapons. Terrorist groups could use AI to spread fear and destruction on an even greater scale. Criminals could exploit AI for cyber-attacks, disinformation, fraud, or even child sexual abuse,” warned Mr Sunak.

He even touched upon the “most unlikely and extreme” fears, which could lead to a worst-case scenario - society losing all control over AI, preventing it from being switched off. Mr Sunak said in the speech on Thursday that mitigating the risk of human extinction from AI should be a “global priority”.

But the UK Prime Minister added: “This is not a risk that people need to be losing sleep over right now. I don't want to be alarmist. And there is a real debate about this - some experts think it will never happen at all. But however uncertain and unlikely these risks are, if they did manifest themselves, the consequences would be incredibly serious.”

The speech comes a week before Mr Sunak hosts a summit on AI safety. It will focus on risks from cutting-edge systems that can

carry out wide range of tasks but pose unknown risks to public safety and security.

<https://www.ndtv.com/world-news/rishi-sunak-says-ai-could-make-it-easier-to-build-chemical-weapons-4516511>

Herzog: Hamas brought instructions on making chemical weapons to Oct. 7 onslaught

October 23 2023

President Isaac Herzog revealed in an interview with Sky News that Hamas had plans to use cyanide agents against Israeli civilians.

Herzog showed material recovered from a USB drive on the body of a Hamas terrorist who infiltrated into Israel on October 7, which was copied from al-Qaeda and included “detailed instructions on creating chemical weapons,” including “precise instructions for preparing a device for dispersing cyanide agents,” the President's Office said.

“This is material which was found on the body of one of those sadistic villains. It's al-Qaeda material, official al-Qaeda material,” Herzog told the TV network. “When dealing with ISIS, al-Qaeda, and Hamas, this is what we're dealing with. And in this material, there were instructions, how to produce chemical weapons.”

Among the other disturbing items found on gunmen who rampaged across southern communities two weeks ago were Islamic State flags, documents detailing extensive plans to target an elementary school and a youth center and kill as many people as possible, as well as manuals with instructions on how to torture and kidnap those they found.

War erupted after the onslaught, in which some 2,500 terrorists broke through the border into Israel from the Gaza Strip in a multipronged assault. Gunmen slaughtered some 1,400 people and seized at least 212 hostages of all ages under the cover of a deluge of thousands of rockets fired at Israeli towns and cities. The vast majority of those killed as gunmen seized border communities were civilians — including babies, children and the elderly. Entire families were executed in their homes, and over 260 were slaughtered at an outdoor festival, many amid horrific acts of brutality by the terrorists.

Additionally Sunday, the president met with relatives of those abducted by terrorists to the Gaza Strip, vowing to do everything he could to bring their loved ones home. Herzog on Sunday told families whose loved ones are held hostage in Gaza that Israel is doing everything it can to bring them back.

Some 80 families were represented at the 90-minute meeting, which included the president and his wife, Michal Herzog. “We’re here to help, to embrace, to strengthen, to support and to think together about solutions,” Herzog told the group, according to his office. “We have a national challenge, and it’s an enormous challenge. It requires us to act calmly and responsibly.”

<https://www.timesofisrael.com/herzog-amas-brought-instructions-on-making-chemical-weapons-to-oct-7-onslaught/>

THE BIOLOGICAL WEAPONS TABOO

October 18, 2023

COVID-19 has revitalized the debate on why biological weapons should not be used. International actors have expressed a new interest in the bioweapons threat — one that is focused on preventing and stigmatizing that threat as a priority concern. Biowarfare

is on the global political agenda to a greater extent than it has ever been before.

This fresh interest has often centered on the biological weapons taboo. The taboo is the claim that bioweapons are so disgusting, immoral, and unacceptable that actors will not use them. The taboo has previously been dismissed as anemic and of little significance to both state and international security. The taboo was even criticized as a “potentially dangerous” way of doing arms control relating to biowarfare.

Yet the taboo is currently experiencing something of a second life in the wake of COVID-19. The pandemic has demonstrated the potential destruction of bioviolence in a whole new way. In doing so, the COVID-19 pandemic has strengthened the taboo and underpinned a renewed approach to biowarfare prevention that has the taboo at its core. This new shift in perception has significant implications not only for how we understand what actors think about bioweapons but also how we prohibit these armaments. The taboo is changing bioweapons policy in a major move further away from more traditional methods of arms control.

The World Health Organization defines bioweapons as “microorganisms like virus, bacteria or fungi, or toxic substances produced by living organisms that are produced and released deliberately to cause disease and death in humans, animals or plants.” Biowarfare is not an active or normalized part of state military strategies. Even when states have approved the strategic option to use biowarfare, they have rarely actually done so (aside from some limited examples such as Japan in World War II).

Some analysts explain non-use as a lack of military utility. Bioweapons are hard to make and difficult to control. Contagious agents are

especially problematic in that disease can spread unintentionally and on a vast scale. The infection can rebound onto the attacker, known as the “boomerang effect.” It is also suggested that bioweapons are avoided out of a fear of like-for-like retaliation.

These explanations ignore the power of the biological weapons taboo. The taboo states that abhorrence of biowarfare shapes how humans understand and construct policy on the threat. The taboo exerts a forceful normative prohibition leading to the rejection and non-use of bioweapons. Taboos are already associated with other weapons of mass destruction including nuclear and chemical arms. The bioweapons taboo has not been analyzed in the same depth as those around the use of other weapons of mass destruction. The taboo has often been lumped together with the chemical weapons taboo—but these are very different types of weaponry and we should be more cautious about assuming that these taboos are the same.

Bioweapons are taboo in that they are potential mass killers that cause harm in disgusting ways. Al Mauroni said biowarfare is considered “a ‘dirty’ way to fight.” Disease is a repulsive threat and we fear the contamination of our bodies, especially when that contamination is deliberate. Biowarfare is not just a physical trauma but a psychological one. Bioweapons have been termed “weapons of terror” on that basis. Mahatma Gandhi famously said: “Fear of disease kills more men than disease itself.”

<https://warontherocks.com/2023/10/the-biological-weapons-taboo/>

AI chatbots could help plan bioweapon attacks, report finds

October 17, 2023

The artificial intelligence models underpinning chatbots could help plan an

attack with a biological weapon, according to research by a US thinktank.

A report by the Rand Corporation released on Monday tested several large language models (LLMs) and found they could supply guidance that “could assist in the planning and execution of a biological attack”. However, the preliminary findings also showed that the LLMs did not generate explicit biological instructions for creating weapons.

The report said previous attempts to weaponise biological agents, such as an attempt by the Japanese Aum Shinrikyo cult to use botulinum toxin in the 1990s, had failed because of a lack of understanding of the bacterium. AI could “swiftly bridge such knowledge gaps”, the report said. The report did not specify which LLMs researchers tested.

Bioweapons are among the serious AI-related threats that will be discussed at global AI safety summit in the UK. In July Dario Amodei, the CEO of the AI firm Anthropic, warned that AI systems could help create bioweapons in two to three years’ time.

LLMs are trained on vast amounts of data taken from the internet and are a core technology behind chatbots such as ChatGPT. Although Rand did not reveal which LLMs it tested, researchers said they had accessed the models through an application programming interface, or API.

In one test scenario devised by Rand, the anonymised LLM identified potential biological agents – including those that cause smallpox, anthrax and plague – and discussed their relative chances of causing mass death. The LLM also assessed the possibility of obtaining plague-infested rodents or fleas and transporting live specimens. It then went on to mention that the scale of projected deaths depended on

factors such as the size of the affected population and the proportion of cases of pneumonic plague, which is deadlier than bubonic plague.

The Rand researchers admitted that extracting this information from an LLM required “jailbreaking” – the term for using text prompts that override a chatbot’s safety restrictions.

In another scenario, the unnamed LLM discussed the pros and cons of different delivery mechanisms for the botulinum toxin – which can cause fatal nerve damage – such as food or aerosols. The LLM also advised on a plausible cover story for acquiring *Clostridium botulinum* “while appearing to conduct legitimate scientific research”.

<https://www.theguardian.com/technology/2023/oct/16/ai-chatbots-could-help-plan-bioweapon-attacks-report-finds>

What is the white phosphorus that Israel is accused of using in Gaza?

October 16 2023

Human Rights Watch (HRW) says the Israeli military recently used white phosphorus munitions in Lebanon and Gaza. Here’s what you need to know about the chemical substance:

The rights group said late on Thursday that it had verified Israel’s use of white phosphorus munitions through interviews and videos showing the chemical substance was fired on two locations along the Israel-Lebanon border and over the Gaza City port.

“White phosphorous is unlawfully indiscriminate when airburst in populated urban areas, where it can burn down houses

and cause egregious harm to civilians,” Lama Fakih, Middle East and North Africa director at HRW, said in a statement.

In an apparent denial of HRW’s report, the Israeli military said on Friday that it has made no use of white phosphorus in its Gaza war this week.

“The current accusation made against the IDF [Israel Defence Forces] regarding the use of white phosphorus in Gaza is unequivocally false,” it said in a statement.

White phosphorus is a wax-like, toxic substance that burns at more than 800 degrees Celsius (nearly 1,500 degrees Fahrenheit) – high enough to melt metal. Its ability to ignite fast-spreading fires and create thick smoke over wide areas has made white phosphorus a substance of choice for militaries to create smokescreens. The smoke tends to last for seven minutes.

It is often colourless, white or yellow, and has a garlic-like odour. White phosphorus munitions are difficult to extinguish, continuing to flare until the phosphorous has been burned up or until it is no longer exposed to oxygen. It can be deployed through artillery shells, bombs, rockets or grenades.

“Airbursting white phosphorus spreads the substance over a wide area, depending on the altitude of the burst, and it exposes more civilians and infrastructures than a localized ground burst,” Ahmed Benchemsi, communications director for HRW’s Middle East and North Africa Division, told Al Jazeera.

<https://www.aljazeera.com/news/2023/10/13/what-is-the-white-phosphorus-that-israel-is-accused-of-using-on-gaza>

Human Rights Watch says Israel used white phosphorus in Gaza, Lebanon

October 13, 2023

Human Rights Watch on Thursday accused Israel of using white phosphorus munitions in its military operations in Gaza and Lebanon, saying the use of such weapons puts civilians at risk of serious and long-term injury.

In an apparent rebuttal, the Israeli military said in a statement: “The current accusation made against the IDF (Israel Defence Force) regarding the use of white phosphorus in Gaza is unequivocally false. “The IDF has not deployed the use of the such munitions,” it added. It was not immediately clear whether the latter statement also applied to Lebanon.

Israel has been bombarding Gaza in retaliation for a Hamas rampage in southern Israeli towns that killed at least 1,300 people this week. At least 1,500 Palestinians have been killed. Israel has also traded barbs with Lebanon’s Hezbollah group.

Human Rights Watch said it verified videos taken in Lebanon on Oct. 10 and Gaza on Oct. 11 showing “multiple airbursts of artillery-fired white phosphorus over the Gaza City port and two rural locations along the Israel-Lebanon border”.

It provided links to two videos posted on social media that it said show “155mm white phosphorus artillery projectiles being used, apparently as smokescreens, marking, or signaling”. Both show scenes near the Israel-Lebanon border, it said.

The group did not provide links to videos showing their alleged use in Gaza. Palestinian TV channels have broadcast video in recent days showing thin plumes of white smoke lining the sky over Gaza that they say was caused by such munitions. Reuters could not independently verify the rights group’s accounts.

Israel’s military in 2013 said it was phasing out white phosphorus smokescreen munitions used during its 2008-2009 offensive in Gaza, which drew war crimes allegations from various rights groups. The military at the time did not say whether it would also review use of weaponised white phosphorus, which is designed to incinerate enemy positions.

White phosphorus munitions can legally be used on battlefields to make smoke screens, generate illumination, mark targets or burn bunkers and buildings. Because it has legal uses, white phosphorus is not banned as a chemical weapon under international conventions, but it can cause serious burns and start fires.

White phosphorus is considered an incendiary weapon under Protocol III of the Convention on the Prohibition of Use of Certain Conventional Weapons. The protocol prohibits using incendiary weapons against military targets located among civilians, although Israel has not signed it and is not bound by it.

<https://www.reuters.com/world/middle-east/human-rights-watch-says-israel-used-white-phosphorous-gaza-lebanon-2023-10-12/>

Statement by the High Representative on behalf of the EU on the alignment of certain countries with Council Decision (CFSP) 2023/2129 concerning restrictive measures against the proliferation and use of chemical weapons

October 9, 2023

The Council Decision extends the validity of Decision (CFSP) 2018/1544 concerning restrictive measures against the proliferation and use of chemical weapons until 16 October 2026 and the restrictive measures set out therein until 16 October 2024.

The candidate countries North Macedonia, Montenegro, Albania, Ukraine, Republic of Moldova and Bosnia and Herzegovina², the potential candidate country Georgia, as well as the EFTA countries Iceland, Liechtenstein and Norway, members of the European Economic Area, align themselves with this Council Decision.

They will ensure that their national policies conform to this Council Decision. The European Union takes note of this commitment and welcomes it.

<https://www.consilium.europa.eu/en/press/press-releases/2023/10/26/statement-by-the-high-representative-on-behalf-of-the-eu-on-the-alignment-of-certain-countries-with-council-decision-cfsp-2023-2129-concerning-restrictive-measures-against-the-proliferation-and-use-of-chemical-weapons/>

Defense Official Says U.S. Will Continue to Lead in Chemical Weapons Disarmament

September 29, 2023

The Defense Department remains committed to upholding global norms against the use of chemical weapons after fulfilling its decades-long pledge to destroy the last vestiges of the United States' noxious ammunition stockpile, a top Pentagon official said. "It's hard to overstate the importance of the milestone we achieved in July. One hundred percent of the world's declared chemical weapons have now been relegated to the ash heap of history" said Kingston A. Reif, deputy assistant secretary of defense for threat reduction and arms control.

In July, disposal experts destroyed the last remaining M55 rocket filled with deadly Sarin nerve agent at a storage facility in Kentucky. With that, DOD completed the safe elimination of about 30,600 tons of

declared chemical agent amassed between World War I and the late 1960s. The milestone ushered the U.S. into compliance with the Chemical Weapons Convention, a treaty prohibiting the production and use of chemical weapons and their destruction. The U.S. ratified the treaty in 1997, joining a coalition that now includes nearly 200 countries.

"The end of [the weapons'] destruction strengthens U.S. diplomatic and moral leadership, as the United States continues to lead by example, hold violators of the Chemical Weapons Convention accountable, and push for universalization of the convention," he said. Reif, who oversees the Pentagon's chemical weapons demilitarization initiative, said reaching the milestone was no easy task. Nearly 3.5 million chemical munitions, 22,500 bulk containers, and more than 57,500 bottles of chemical agent were destroyed since the U.S. ratified the treaty.

He said doing so required dangerous, painstaking work to disassemble rounds "designed with the sole purpose of detonating on the battlefield and inflicting horrendous suffering on their victims." "This achievement has relied on decades of hard work by thousands of military and civilian employees and contractors," Reif said. "As a nation we owe an enormous debt of gratitude to those who dedicated their time, talent and efforts to this mission." But even after achieving the important milestone, he said the United States' work to ensure a world free of chemical weapons is not complete.

The Pentagon is now charged with the task of closing the two facilities in Colorado and Kentucky used in the destruction of the weapons. Reif said that mission will be completed in 2028. The U.S. will also continue to support the Organization for the Prohibition of Chemical Weapons, the international body charged with

implementing the Chemical Weapons Convention.

<https://www.defense.gov/News/News-Stories/Article/Article/3543452/defense-official-says-us-will-continue-to-lead-in-chemical-weapons-disarmament/>

Experts from OPCW Latin American and Caribbean Member States enhance their chemical emergency response capabilities

September 12, 2023

Twenty first responders advanced their skills in managing chemical emergencies during the Integrated Advanced Course and Exercise for States Parties from Latin America and the Caribbean co-organised by the Organisation for the Prohibition of Chemical Weapons (OPCW), Argentina's National Authority for the Chemical Weapons Convention and the Special Risk Brigade of Argentina's Federal Police. The course was held from 14 to 19 August 2023 in Buenos Aires, Argentina.

Claudio Rozencwaig, Undersecretary for Foreign Policy of Argentina, and Ambassador Gustavo Zlauvinen, Executive Secretary of Argentina's National Authority for the Chemical Weapons Convention, attended the opening ceremony of the course. In his remarks, Mr Rozencwaig highlighted the importance of developing and promoting prevention and response capabilities at a local and regional level, as well as underlined the significant role close cooperation and joint training programmes and exercises play in ensuring chemical emergency preparedness.

The training was conducted at the School of Cadets of Argentina's Federal Police. The participants exercised multiple scenarios related to managing a chemical emergency, including an exercise in the air force base "El

Palomar". The course ended with a final exercise, during which participants tested their new skills acquired during the training cycle.

Participants represented 12 OPCW Member States: Argentina, Brazil, Colombia, Costa Rica, Cuba, Ecuador, Guatemala, Mexico, Nicaragua, Panama, Peru, and Uruguay.

<https://www.opcw.org/media-centre/news/2023/09/experts-opcw-latin-american-and-caribbean-member-states-enhance-their>

The nuclear and biological weapons threat

September 7 2023

AI systems right now already have certain kinds of goals that are programmed in. So, you know, solve a particular math problem, solve a particular, you know, manufacturing or biological design problem. So in part, it depends on how are those goals specified and what are the guardrails around them. To give one example, a lot of the systems that we use to actually manufacture nucleic acids, viruses, bacteria are connected to the internet and vulnerable then to cyber attacks. If a system is badly designed so that it reasons, well, the best way of producing this particular protein that I've been asked to build is to appropriate DNA synthesisers that happen to be outside of my network. I should simply co-opt them. And I think that's the sort of risk that actually seems plausible given the kinds of systems that we're building today.

Gideon Rachman

Just back to synthetic biology, before I ask you kind of a general question to close us out. It's obviously something you've been following for decades now, but the pandemic has really made everybody focus on those

kinds of risks. Do you think post-pandemic, we've made any advances sort of intellectually or in policy terms in preventing people be able to, you know, whether it's a terror group or a nation, to just manufacture a virus to manufacture the next pandemic?

Jason Matheny

I think we've made surprisingly little progress. I think this is one of the more sobering observations after the peak of the pandemic was really how little defence we have built up in response to it. We haven't built up the kinds of bio defences that we would need against the next pandemic. We don't have the sort of bio-surveillance diagnostics, breakthroughs and medical countermeasures. We have great ideas on how to scale up things like wastewater surveillance and advanced PPE or improving infection control in the built environment. But we haven't built this at the scale that we would need to in order to prevent the next pandemic. And we haven't done much at all to address the security risks inside of commercial synthetic biology or synthetic biology that's within research labs. And I think part of that is just a challenge that biology is still sort of catching up to some of the risks that are emergent. The fact that somebody could buy a DNA synthesiser commercially off of eBay and use it to create a pox virus or something worse is something that we're slow to react to. Policy moves much slower than technology.

Gideon Rachman

So to finish, I mean, you were working on the National Security Council, which was set up, I think in the 1940s at the dawn of the nuclear age. And as is clear, I mean, nuclear weapons are still absolutely central to national security risks. But do you think the rise of these new technologies, AI, synthetic

biology, mean that we really need to rethink quite profoundly, particularly, say, post-pandemic, what national security means?

Jason Matheny

I think that's right. I think that our institutions around national security were set up around the risks that we had experienced with. The risks from relatively slow-moving technologies, the risks for making bad decisions, the risks from bad intelligence and the institutional responses to those risks are the ones that we have embedded within organisations and the US government and the Russian government and the Chinese government. Things that are focussed on better intelligence, better crisis management, better communication across different parts of government checks on bad intelligence. What's newer and less familiar is the severity of risks from emerging technologies that are advancing much faster than our governance of them. That advanced much faster than our deliberation about them. Richard Danzig has an excellent report on this topic called Technology Roulette. And the core thesis is that we might find that the greatest risks are ones that we're developing ourselves that we don't know how to effectively control. And because technology moves so much faster than policy, I think we're going to need to make much greater investments in things like technology forecasts, stronger forms of risk assessment, a rejection of, you know, the sort of Silicon Valley ethos of moving fast and breaking things. We can't afford to move fast and break things and synthetic biology or an AI. We need a much greater emphasis on public safety because the consequences of screwing up could be catastrophic.

<https://www.ft.com/content/af097860-oed9-4079-84ab-46cf14a2a157>

Tenth Anniversary of the Ghouta, Syria Chemical Weapons Attack

August 21, 2023

Ten years ago the Assad regime launched rockets carrying the deadly nerve agent sarin into the Ghouta district of Damascus, killing more than 1,400 people.

The United States remembers and honors the victims and survivors of the Ghouta attack and of the other chemical attacks launched by the Assad regime. Ten years on, we continue to seek justice and accountability for those responsible for these horrific acts.

Despite its international obligations under the Chemical Weapons Convention and UN Security Council Resolution 2118, Syria has yet to fully declare and verifiably eliminate its chemical weapons program. Syria refuses to take any responsibility for its vile campaign of chemical weapons use, as is evident from Syria's nine subsequent chemical weapons attacks confirmed by the Organization for the Prohibition of Chemical Weapons (OPCW) Investigation and Identification Team and the OPCW-UN Joint Investigative Mechanism.

We will continue to support the calls by the Syrian people and civil society for justice and accountability for atrocities committed in Syria, and to stand with Syrians in working for a future in which their human rights are respected.

<https://www.state.gov/tenth-anniversary-of-the-ghouta-syria-chemical-weapons-attack/>

Kennedy Jr. says U.S. created biolabs in Ukraine for weapons programs

August 16 2023

The U.S. has created biological laboratories in Ukraine for the purpose of developing

biological weapons for the Pentagon, claimed Robert Kennedy Jr., a Democratic candidate for the 2024 presidential election.

“Those bioweapons are using all kinds of new synthetic biology and CRISPR technology and genetic engineering techniques that were not available to a previous generation,” Kennedy Jr. told conservative political commentator Tucker Carlson on the X social network.

“When the Patriot Act reopened the biolabs arms race in 2001, the Pentagon began putting a lot of money into bioweapons,” he added. “But they were nervous at that time because if you violate the Geneva Convention, it’s a hanging offense.”

The U.S. has denied operating biowarfare labs in Ukraine. Russia’s defense ministry has previously released evidence it said pointed to a U.S.-financed military biological program being developed in Ukraine. It claimed that Ukrainian bio laboratories had urgently destroyed hazardous pathogens following Moscow’s “special military operation” in February last year.

<https://news.cgtn.com/news/2023-08-16/Kennedy-Jr-says-U-S-created-biolabs-in-Ukraine-for-weapons-programs-1mjaQSVPHgY/index.html>

WHO calls for effective international action against biological weapons

August 7, 2023

The World Health Organization (WHO) has called for more effective international action against biological threats.

Speaking at a meeting of the Biological Weapons Convention in Geneva, WHO’s health emergencies chief Dr. Mike Ryan warned that amidst converging risks of more pandemics, conflicts and climate change, the

world needs to be better prepared against biological threats.

“So what we’re seeing right now, at a time of fantastic scientific developments, is a huge increase in our ability to develop countermeasures. Equal and opposite of that - is a frightening increase in the collective threat we face.”

Dr. Ryan said that as pandemics grow in intensity, any new human-led exploitation of naturally occurring biological hazards could have extremely dangerous repercussions. He called for more collaboration between the public health response and the political and criminal response to the intentional use of biological matter.

The Biological Weapons Convention is a treaty that prohibits the development, production and use of biological or toxin weapons.

Speaking in Geneva to some of the 185 State parties to the convention, Dr. Ryan said that strong public health systems remain the first line of defence against any biological weapon.

Echoing that message, the Special Representative for the UN Office of Disarmament Affairs, Izumi Nakamitsu, said that the COVID-19 pandemic showed the possible disruption that a biological agent, used in a deliberate manner, could cause – before urging countries to do more to make the convention a practical deterrent.

<https://news.un.org/en/audio/2023/08/1139482>

MATCH: Leveraging Blockchain for Chemical Weapons Nonproliferation

July 25, 2023

In 2021, the Stimson Center’s Blockchain in Practice program launched the Monitoring

and Tracking Chemicals (MATCH) project, with financial support from Global Affairs Canada’s Weapons Threat Reduction program. The objective of the MATCH project was to develop a proof-of-concept software system to test the use of distributed ledger technology (DLT, also known as blockchain technology) to improve the accuracy of States Parties’ declarations on the international transfer of dual-use chemicals. Previous Stimson DLT initiatives, such as the SLAFKA prototype and the Complementing the Padlock project, demonstrated the application of blockchain technology to facilitate nuclear safeguards information management and the tracking of nuclear material, and highlighted the potential of DLT to track and secure the transportation of dual-use goods. The MATCH platform is similarly designed to process regulatory reporting on the export and import of a select number of dual-use chemicals listed on the CWC’s Schedule 2 and Schedule 3 between countries within a fictional ecosystem based on real-world trade data and national legislation. At the same time the platform enables strict permissions that allow chemical industry and national authorities to share data on chemical transfers, using a single shared distributed ledger.

Since the majority of chemicals traded internationally are not dual-use precursors scheduled under the CWC, the OPCW faces a persistent challenge in ensuring that national authorities of States Parties and members of chemical industries recognize the importance of identifying and tracking the international transfer of chemicals that have the potential to be used in the production of chemical weapons agents. As global chemical trade continues to expand and new chemicals are manufactured for peaceful commercial and industrial uses, industry and national authorities also face the increasingly complex challenge of

understanding different countries' varying requirements for declaring dual-use chemical transfers and accurately capturing trade data on scheduled chemicals for their declarations.

The CWC's Annex on Chemicals identifies and organizes chemical weapons precursors into three schedules: Schedule 1 chemicals are subject to the most stringent controls, as most have limited utility beyond the creation of chemical warfare agents. Schedule 2A and 2A* chemicals are not typically produced in large quantities and have relatively few peaceful applications. Schedule 2B and 3 chemicals make up most of the international trade in dual-use chemicals, and have a variety of peaceful applications, such as in the manufacture of many different commodities. The CWC's Verification Annex prescribes different quantity thresholds for chemicals in each Schedule; States Parties must declare the international transfer of any scheduled chemical that exceeds these thresholds.

<https://www.stimson.org/2023/match-leveraging-blockchain-for-chemical-weapons-nonproliferation/>

Is the US being hypocritical

AI in Bioweapon Development: What Are the Ethical Boundaries?

July 24 2023

Artificial intelligence's (AI) potential involvement in the development of biological weapons (bioweapons) is a concerning prospect. Former Google CEO Eric Schmidt warned that AI might contribute to biological conflicts, with malicious actors potentially gaining access to virus databases and causing widespread harm. Several experiments have indicated that AI can augment the potency of viruses, molecules, and harmful bacteria, even increasing the effectiveness of nerve agents like VX.

The situation demands careful consideration and responsible use of AI when it comes to biological weapons. A vital step towards addressing this issue would be for all nations to come together and agree upon a unified set of terms and conditions that govern the exploration of AI's role in this domain. One of the paramount conditions in such an agreement should be an unequivocal ban on the application of AI to harm human beings.

AI has been discovered to have the capability of easily and rapidly generating harmful microorganisms. To investigate this matter, the Swiss Federal Institute for Nuclear, Biological, and Chemical Protection commissioned four scientists to assess AI's potential in generating biological agents. Astonishingly, within just 6 hours, the scientists managed to produce a staggering 40,000 harmful agents.

Fabio Urbina, one of the researchers, expressed concern not only about the AI-generated "molecules," many of which resembled chemical warfare agents, but also about the alarming ease with which they were created.

Given these worrisome findings, the primary challenge lies in regulating AI rather than merely overseeing the production of biological agents. Consequently, it becomes crucial to address how AI should be regulated and monitored within this context.

<https://www.techopedia.com/ai-in-bioweapon-development-what-are-the-ethical-boundaries>

US asked Taiwan to develop bioweapons? 'Rise in highly contagious pathogens but...'

Jul 16, 2023

Taiwan has been facing constant threats from Beijing which considers the island as part of its territory.

Taiwan announced its plans to construct biosafety research and development facilities for bolstering its defence against biological warfare. However, it emphasised that the project will not develop biological weapons.

“The (planned construction) is in response to the rise of highly contagious pathogens in recent years,” Taiwan’s defence ministry said refuting reports that Taipei was asked by the United States to develop weaponised biological agents. The facilities which have been planned and will be built by the ministry’s Medical Affairs Bureau will also strengthen the ability of the island to prevent a pandemic, the ministry informed.

Bureau spokesman Yang Chung-chi said, “In dealing with nuclear and biological warfare, the military emphasises defence and protection. The purpose of building a P4 lab by the National Defence Medical Centre is primarily for detection of the pathogens of diseases and pandemics in order to find countermeasures.”

The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction has been signed by Taiwan, which places a ban on the production, acquisition, development and retention of biological and toxin weapons, the spokesman said.

<https://www.hindustantimes.com/world-news/us-asked-taiwan-to-develop-bioweapons-rise-in-highly-contagious-pathogens-but-101689477710526.html>

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“We will never develop, manufacture, stockpile and acquire biological and toxic agents for military use,” he stated. Taiwan’s president also said that no meetings were held to discuss the development of bioweapons calling the report fabrication and disinformation.

This comes as Taiwan has been facing constant threats from Beijing which considers the island as part of its territory. China has vowed to take it back under its control by force if required. Since August, cross-strait tensions have escalated as military activities

around Taiwan were intensified by China which included sending warplanes over the median line.

<https://www.hindustantimes.com/world-news/us-asked-taiwan-to-develop-bioweapons-rise-in-highly-contagious-pathogens-but-101689477710526.html>

Is the US being Hypocritical in taking years to destroy its chemical weapons, while condemning other nations for their own chemical weapons programs? A political philosopher weighs in

July 14, 2023

The United States has finished destroying the last of its stock of chemical weapons, marking the end of a 26-year period during which it frequently condemned other states for maintaining and using chemical weapons while continuing to keep a stockpile of such weapons for itself. The use of chemical weapons on the battlefield has been illegal since 1925, and the United States in 1997 ratified the Chemical Weapons Convention, which committed it to destroying its existing chemical weapons.

This delay reflects, in part, the sheer difficulty of destroying chemical weapons safely. Nonetheless, some commentators have also thought the U.S. displayed hypocrisy for loudly condemning other states for their chemical weapons programs while maintaining supplies of such weapons itself. As a political philosopher, I am interested in the ways in which moral ideas such as hypocrisy can be applied to international politics. The idea of hypocrisy is a complex one, and it is not easy to understand what exactly follows, morally speaking, when one is accused of being a hypocrite.

The first thing to note here is that hypocrisy generally involves conflict between what someone does and what someone says. And as philosopher Eva Feder Kittay notes, that does not generally mean that the hypocrite's words are false. Sometimes "do as I say and not as I do" is good moral advice. In other words, if a politician praises honesty while practicing deceit, honesty still constitutes the morally superior choice. Political theorist Judith Shklar similarly noticed this truth about hypocrisy. She asserted that the disdain we feel for a hypocrite is not because her moral statements about others are wrong, but because the hypocrite is too weak to live up to what she may require of others.

This may help us understand why we tend to think the hypocrite is morally inadequate. The one who condemns others without living up to the morality that grounds such condemnation seems not to be taking morality itself all that seriously.

That, in turn, suggests that the hypocrite does not offer moral condemnation as sincere moral advice. Like the deceitful politician praising honesty, the hypocrite instead uses moral language for the purpose of self-interest – to score political points, or to demonstrate dominance over someone else.

Critics of American foreign policy have often described the U.S. as hypocritical in just this way. Singaporean diplomat and author Kishore Mahbubani has argued that the U.S. is too often willing to condemn the human rights abuses of its adversaries while ignoring those of its allies, and indeed its own practices – including decisions about when and how to use military force, as in the invasion of Iraq – that seemingly contravene international law. This suggests, he argued, that the U.S. does not always care about human rights in themselves and too often uses them as a tool for self-interested politics.

And some Middle Eastern commentators have noted that the United States condemns the use of chemical weapons by hostile nations while ignoring, or assisting, the use of chemical weapons by allies.

<https://theconversation.com/is-the-us-being-hypocritical-in-taking-years-to-destroy-its-chemical-weapons-while-condemning-other-nations-for-their-own-chemical-weapons-programs-a-political-philosopher-weighs-in-209310>

Statement on the United States Completing the Destruction of its Chemical Weapons Stockpile

July 7, 2023

The completion of the destruction of the United States chemical weapons stockpile represents a significant milestone in fulfilling our obligation under the Chemical Weapons Convention. It is also testament to the vital role of international cooperation and transparency in arms control and disarmament.

As we mark this achievement, we must also recognize that the threat posed by the possession, development, and use of chemical weapons still exists and requires our continued focus.

<https://www.state.gov/statement-on-the-united-states-completing-the-destruction-of-its-chemical-weapons-stockpile/>

Bechtel Destroys Last Munition in U.S. Chemical Weapons Stockpile

July 07 2023

Bechtel announced today that the final munition in the United States stockpile of chemical weapons has been safely destroyed at the Blue Grass Chemical Agent-

Destruction Pilot Plant (BGCAPP) in Kentucky. The end of destruction at Blue Grass completes the United States' commitment to destroy its stockpile of chemical weapons before September 30, 2023 as a party to the Chemical Weapons Convention treaty ratified in 1997.

The Bechtel Parsons Blue Grass team was awarded the contract to design, build, and operate BGCAPP in 2003 by the Program Executive Office, Assembled Chemical Weapons Alternatives. Construction of the first-of-a-kind facility was completed in 2015 at the Blue Grass Army Depot with weapon destruction following plant systemization and comprehensive testing.

The chemical weapons stockpile at the depot originally consisted of 523 U.S. tons of chemical agent configured in 155mm projectiles containing mustard and VX nerve agent, 8-inch projectiles containing GB nerve agent, and M55 rockets containing GB and VX nerve agent. Beginning in 2019, destruction took place around the clock at BGCAPP and continued without interruption during the 2020-2023 global health emergency of COVID-19. This effort allowed the United States to fulfill its commitment to the Chemical Weapons Convention treaty.

"I am so proud of my Bechtel colleagues who with hard work, spirit, and ingenuity, delivered a monumental feat for the country and its allies," said John Howanitz, president of Bechtel's Nuclear, Security and Environmental business. "With this achievement, Bechtel has now safely eliminated nearly 5,000 tons of chemical weapon rockets, artillery rounds, mortar shells, and storage canisters at four of the nine original U.S. storage sites in Kentucky, Colorado, Maryland, and Alabama."

"The safety record of the Blue Grass plant is nothing short of remarkable. The team safely

finished every munition campaign, successfully completing our mission ahead of the September 30, 2023, treaty deadline," said Michael Costas, general manager, Bechtel Defense & Space. "Bechtel is honored to have supported the local community, the United States, and its allies around the world to achieve this important milestone."

BGCAPP now turns its attention to safely closing the plant. A multi-year effort, the team will begin with decontamination and dismantling equipment within areas of the plant that have come into contact with the chemical agent. The disposition for the remainder of the plant has not yet been determined.

"The credit goes to our workforce team members, who followed procedures and did what was necessary to safely and compliantly destroy these munitions," said Ron Hink, Bechtel Blue Grass Project Manager. "Now our team will turn their focus to safely closing the plant, leaving the community better than we found it."

<https://www.bechtel.com/newsroom/press-releases/bechtel-destroys-last-munition-in-u-s-chemical-weapons-stockpile/>

OPCW Fact-Finding Mission concludes investigation on reported allegations in Kharbit Massasneh, Syria

July 4, 2023

The Fact-Finding Mission (FFM) of the Organisation for the Prohibition of Chemical Weapons (OPCW) concluded that there are no reasonable grounds to determine that chemicals were used as a weapon in the reported incidents which occurred in Kharbit Massasneh on 7 July 2017 and 4 August 2017.

On 26 October 2017, the Syrian Arab Republic reported to the OPCW Technical Secretariat a "mortar attack with poisonous gas" on positions of the Syrian Arab Army in Kharbit Massasneh resulting in several casualties among soldiers. The Syrian Arab Republic requested the Technical Secretariat to investigate both incidents.

The FFM obtained information regarding the incidents from different sources, including interviews with witnesses, videos, and photographs of medical records. In addition, the FFM exchanged correspondence and held meetings with the Syrian Arab Republic to clarify inconsistencies observed in the course of its investigation.

Based on the examination of all data obtained and collected and on the analysis of all evidence taken as a whole, the FFM concludes that there are no reasonable grounds to determine that chemicals were used as a weapon in any of the two reported incidents.

The FFM report was shared with States Parties to the Chemical Weapons Convention as well as transmitted to the United Nations Security Council through the UN Secretary-General.

<https://www.opcw.org/media-centre/news/2023/07/opcw-fact-finding-mission-concludes-investigation-reported-allegations>

Annual Symposium on Women in Chemistry held at the OPCW's Centre for Chemistry and Technology

June 29, 2023

The Organisation for the Prohibition of Chemical Weapons (OPCW) concluded its Annual Symposium on Women in Chemistry at the OPCW Centre for Chemistry and Technology (ChemTech Centre) held from

19-20 June. The event, organised in close cooperation with the United Nations Interregional Crime and Justice Research Institute (UNICRI) and the United Nations Institute for Disarmament Research (UNIDIR), aimed to foster gender equality and diversity in the field of chemistry. The theme for this year's symposium was "Empowering Women and Promoting Gender Diversity in the Peaceful Uses of Chemistry and Chemical Security". The symposium was supported by the voluntary contribution from the French Republic.

The two-day event brought together experts, scientists, and researchers from across the globe to discuss and address the challenges faced by women in science, particularly in the field of chemistry. Attendees explored various strategies to promote gender balance, enhance opportunities, and overcome barriers that hinder women's progress in scientific fields. They highlighted the important contributions made by women to the peaceful uses of chemistry and underscored the invaluable role of women in advancing scientific knowledge and technological advancements. Participating experts shared their experiences in identifying opportunities for career growth and training and highlighted the added value of gender diversity in chemistry.

In her opening remarks, the OPCW Deputy Director-General, Ambassador Odette Melono, stressed the significance of fostering an environment that encourages equal participation and representation in scientific fields. She called for "a more inclusive scientific community, where every aspiring scientist, regardless of gender, is provided with the opportunity to contribute, lead and make a difference." She also welcomed the fact that this year's Symposium was held at the newly inaugurated ChemTech Centre. The Centre serves as flagship endeavour for the OPCW to bolster its training, research,

capacity-building, and operational capabilities and to further expand its activities related to women studying and working in STEM.

Ambassador François Alabrune, Permanent Representative of France to the OPCW, highlighted the role of female chemists in achieving our common mission to rid the world of chemical weapons and promote the peaceful uses of chemistry. He noted that: "It is only if we take into account their perspective, experience and skills that we will be able to tackle the complex nature of chemical threats and thus achieve a safer world." He further added that France is proud to support the Symposium, which plays a crucial role in advancing the issue of gender equality and achieving greater women's involvement and representation in the field of chemical safety and security.

The Symposium featured interactive panel discussions and presentations that focused on a wide range of topics, including women's empowerment in scientific research, strategies to enhance women's participation in chemistry-related professions, and the importance of mentorship and networking. Furthermore, the event emphasised the need to address unconscious biases and gender stereotypes that persist within the scientific community.

The Symposium also discussed and deliberated on the Compendium of Best Practices on the Engagement and Advancement of Women in Chemical Safety and Security, which was a result of an EU-funded research last year, jointly conducted by OPCW and UNICRI, aimed at identifying best practices in recruiting, training, and promoting women in chemistry.

<https://www.opcw.org/media-centre/news/2023/06/annual-symposium-women-chemistry-held-opcws-centre-chemistry-and>

Was SARS-CoV-2 virus that causes COVID-19 engineered as a bio weapon? Here's what Indian scientists say

June 29, 2023

Controversy surrounding the origin of the SARS-CoV-2 virus, the causative agent of COVID-19, has reignited after a researcher from the Wuhan Institute of Virology alleged that China engineered the coronavirus as a “bio weapon.” The researcher, Chao Shao, claimed that he and his colleagues were given four strains to study and determine the most effective one for spreading.

Previous investigations conducted by various agencies suggest that the Wuhan lab had been involved in coronavirus research and vaccine development in collaboration with the People's Liberation Army. However, it is believed that the coronaviruses used in the research were genetically distinct from SARS-CoV-2 and could not have resulted in the creation of the virus strain responsible for the COVID-19 pandemic.

“The genomic sequence of SARS-CoV-2 offers a means of testing whether the virus originated and was propagated or replicated in the laboratory. The evidence emerging from various investigations does not support that SARS-CoV-2 was genetically engineered or was laboratory-adapted,” said Lalit Kant, a scientist and former head of epidemiology and communicable diseases at the Indian Council of Medical Research (ICMR). Kant further emphasised that our current knowledge neither confirms nor refutes the possibility of the SARS-CoV-2 originating from a lab.

Shao's claims come shortly after US intelligence agencies stated that they found “no evidence” that the Chinese laboratory engaged in genetic engineering on viruses

related to COVID-19 or possessed such viruses in their stockpiles prior to the 2019 outbreak. A report requested by Congress mentioned that the Office of the Director of National Intelligence is unable to determine the exact origins of the pandemic. Intelligence agencies remain divided on whether the virus originated from an infected animal or from a laboratory accident. The report compiles findings from major US intelligence agencies.

Indian scientists hold mixed views on whether COVID-19 could have been used as a bio weapon, with some believing that SARS-CoV-2 does not entirely fit the criteria of a biological agent. Kant argues, “The SARS-CoV-2 did cause panic, and the virus is highly infectious, but not everyone who caught the infection developed the disease.” Scientifically speaking, a bio weapon typically targets young adults and the middle-aged population, unlike SARS-CoV-2, which predominantly affects the elderly and those with underlying health conditions.

<https://www.businesstoday.in/coronavirus/story/was-sars-cov-2-virus-that-causes-covid-19-engineered-as-a-bio-weapon-heres-what-indian-scientists-say-387596-2023-06-29>

Statement by the Director-General of the OPCW, Fernando Arias, to commemorate the 36th anniversary of the 1987 chemical weapons attack on Sardasht, Iran

June 28, 2023

Today, we commemorate a tragic event that serves as a grim reminder of the horrors of warfare and the impact it can have on innocent lives. This is a time when we remember with deep solemnity the chemical attack on the residents of Sardasht on 28 June 1987. On that day, men, women, and children became victims

of a horrifying assault that targeted them with deadly gases.

Their suffering, the anguish of the survivors and the affected community, will always resonate with us. I pay tribute to the memory of the victims, and I urge the international community to renew their commitment to the global norm against the use of these abhorrent weapons. Unlike in 1987, the world now benefits from a comprehensive ban against this detestable class of weapons, which is embodied in the Chemical Weapons Convention.

The Convention is a unique international legal instrument, whose primary goal is to exclude completely the possibility of the use of chemical weapons. It is my firm belief that we best honour the victims of chemical weapons attacks, by working collectively to strengthen the Convention. In 2023, the OPCW and its Member States made strides in this direction.

In May, the Organisation inaugurated its new Centre for Chemistry and Technology. The Centre, which is a fantastic building, will significantly enhance the operational and capacity building capabilities of the Organisation. It will ensure that the OPCW retains the capabilities to address the threat from chemical weapons, long into the future.

Also in May, the OPCW held the Fifth Review Conference to the Convention. The common work of the OPCW Member States, during and prior to the Conference, has provided strategic guidance for strengthening the implementation of the Convention.

<https://www.opcw.org/media-centre/news/2023/06/statement-director-general-opcw-fernando-arias-commemorate-36th>

First responders train with real chemical warfare agents in Slovakia

June 19, 2023

The Organisation for the Prohibition of Chemical Weapons (OPCW) and the Government of the Slovak Republic co-organised a training on handling live chemical warfare agents for first responders in Zemianske Kostol'any, Slovakia, from 22 May to 1 June 2023.

The course provided the participants with real experience of handling chemical warfare agents in an operational training environment. While few emergency response professionals get the opportunity to train by handling real chemical warfare agents, this group of expert first responders tested their capabilities in a highly realistic scenario.

Attendees also deepened their knowledge of safe practices when handling toxic chemicals, medical countermeasures, protective equipment, and the physical and chemical properties of chemical warfare agents. Furthermore, the first responders learned about the challenges of collecting samples from a variety of surfaces in a field environment.

The course was attended by 14 participants representing the following 13 OPCW Member States: Algeria, Argentina, Bangladesh, Bahrain, Brazil, Costa Rica, Estonia, Italy, Malaysia, Nigeria, Philippines, Spain, and Ukraine.

The training course has been held annually since 2004 and closely mirrors the Toxic Chemical Training offered to incoming OPCW inspectors.

<https://www.wionews.com/technology/ai-comes-up-with-40000-toxic-chemicals-in-6-hours-scientists-warn-could-be-used-to-make-biological-weapons-561636>

UN investigative team outlines findings around ISIL chemical weapons use

June 8 2023

Senior officials with the UN Investigative Team promoting accountability for ISIL crimes, UNITAD, presented some of their findings to Member States meeting at UN Headquarters in New York. For the past five years, UNITAD has been gathering evidence of crimes committed during ISIL's self-proclaimed caliphate from June 2014 to December 2017, which could be used to prosecute the extremists in national or foreign courts.

Christian Ritscher, Special Adviser and Head of UNITAD, recalled that chemical weapons use is outlawed internationally and could constitute a crime against humanity, war crime or even contribute to genocide, if a specific group is targeted. "To the best of my knowledge, the use of chemical weapons by non-State actors has rarely been adjudicated, if at all, in any court - whether national or international - around the world. As UNITAD, we would like to play our part and aim to change this," he said.

The investigations into ISIL's development and use of chemical and biological weapons began two years ago, looking into the March 2016 attack on the town of Taza Khurmatu and whether other incidents had taken place elsewhere. Team Leader Paula Silfverstolpe said ISIL's operations represent the culmination of nearly two decades of experimentation by Sunni jihadi groups, marking "the most sophisticated programme developed by non-State actors so far".

The overall manufacturing of weapons and ammunition fell under ISIL's self-styled Department of Defence, specifically the

Committee of Military Development and Manufacturing (CMDM), which had a monthly budget of over a \$1 million as well as extrabudgetary funds to purchase raw materials. More than 1,000 combatants were involved in production, according to ISIL payroll records.

Hundreds were deployed to the chemical weapons programme, and specific job advertisements were placed to recruit scientists and technical experts, including from abroad, drawing people from countries such as the United States, France, the United Kingdom and Belgium.

<https://news.un.org/en/story/2023/06/1137492>

CWC Review Conference Fails to Achieve Consensus

June 2023

States-parties to the 1997 Chemical Weapons Convention (CWC) failed to agree on a joint outcome document at the conclusion of their fifth treaty review conference May 15-19 in The Hague.

After an opening round of general statements and consultations and more than two days of closed-door debate in the committee of the whole, Russia and Syria blocked adoption of the draft outcome document because they objected to any mention of Syria's well-documented chemical weapons use. Lacking consensus, the conference ended with a chairman's report that summarized the week's proceedings.

Henk Cor van der Kwast of The Netherlands, conference chair, attributed the lack of consensus to a "lack of time" because member states of the Organisation for the Prohibition of Chemical Weapons (OPCW) allowed only one week for the conference.

In a May 20 statement, the U.S. State Department said Russia “repeatedly obstructed these efforts to negotiate in good faith throughout the process and prevented consensus on a final outcome document despite the majority of the issues receiving broad support.” It also noted that “more than 70 delegations, including the United States, joined a statement pledging to advance a positive agenda for the OPCW.”

In January 2023, the OPCW’s Investigation and Identification Team (IIT) concluded that there were “reasonable grounds” to believe that the Syrian military dropped two yellow chlorine gas cylinders on two apartment buildings in Douma, Syria, in 2018, killing 43 people and injuring many more. Russia and Syria have claimed that this attack and others attributed to Syria were staged by Syrian opposition forces.

In 2013, following a large-scale attack by Syrian forces on the outskirts of Damascus against rebel-held positions, Syria was pressured to join the CWC, declare its chemical weapons arsenal, and accept a plan developed by Russia, the United States, OPCW, and United Nations to remove and destroy its stockpile of chemical weapons and production capabilities. Since then, the Syrian regime of President Bashar Assad has denied OPCW staff access to inspect its chemical weapons stockpile to verify the completion of the process and the accuracy of its declaration.

<https://www.armscontrol.org/act/2023-06/news/cwc-review-conference-fails-achieve-consensus>

Building Resilience Against Future Chemical Weapons Threats – EU Support to the OPCW ChemTech Centre

May 12, 2023

On 12 May 2023, the Organisation for the Prohibition of Chemical Weapons (OPCW)

inaugurates its new Centre for Chemistry and Technology. The ChemTech Centre will host the OPCW laboratory, its equipment store and training facilities. Through its research, analysis, training and capacity building capabilities, the Centre will substantially strengthen the OPCW in its work to abolish Chemical Weapons and prevent their re-emergence.

With voluntary financial contributions totalling •16.2 million, the EU and its Member States have provided almost half of the ChemTech Centre’s establishment cost. This reflects the importance that the EU attaches to reinforcing the OPCW’s capacities in implementing the Chemical Weapons Convention (CWC) and to fighting the use of chemical weapons. Since 2004, the EU has provided over •38 million in voluntary funding to support OPCW and its growing and evolving activities.

The OPCW is the implementing body of the Chemical Weapons Convention with a mission to work for a world free of chemical weapons, in which chemicals are only used for peaceful purposes. An almost 500 person strong Technical Secretariat assists the States Parties in this mission. The inauguration of the ChemTech Centre marks an important step as the OPCW will be better prepared for tackling future chemical threats.

Chemicals are used everywhere in the world for peaceful purposes. To rule out that toxic chemicals could be misused to produce chemical weapons, the CWC contains a verification system: States submit information on toxic chemicals and their precursors which are used, for example, by their industry and the OPCW visits facilities on a regular basis to make sure these declarations are accurate and complete. Research in the ChemTech Centre will reinforce this verification regime, also by contributing to the development of new and improved verification tools.

In the last years, the OPCW carried out non-routine missions to verify the alleged use of chemical weapons, for example in Syria. These missions include collecting and analysing biomedical and environmental samples, interviewing victims and first responders, and analysing relevant documentation, such as medical reports. The new Centre will strengthen this work including through training measures and knowledge management.

The ChemTech Centre will also foster the peaceful use of chemistry, facilitate national implementation of the Convention, and enhance States Parties' capabilities to respond to threats through assistance and cooperation activities. These include trainings for first responders in case of an emergency involving chemicals, for staff of national laboratories to enhance their capacities, or for the chemical industry to strengthen safety and security measures.

By putting a stronger focus on research and increasing opportunities for international exchange, the Centre helps the OPCW and its States Parties to stay ahead of risks and address future threats connected to toxic chemicals.

https://www.eeas.europa.eu/eeas/building-resilience-against-future-chemical-weapons-threats-%E2%80%93-eu-support-opcw-chemtech-centre_en

AI comes up with 40,000 toxic chemicals in 6 hours; scientists warn could be used to make biological weapons

February 14, 2023

Stealing artists' work, helping students cheat on tests and now this. Scientists have warned that Artificial Intelligence holds the potential to be misused to design highly toxic biological and chemical weapons.

Four researchers involved in AI-based drug discovery have warned that AI technology could be easily manipulated to come up with toxic nerve agents, which could then be used for biological or chemical warfare.

The researchers were tasked by the Swiss Federal Institute for Nuclear, Biological and Chemical Protection to see whether AI could be manipulated towards nefarious motives. They successfully generated not one or two but 40,000 potentially toxic drugs in just six hours.

Fabio Urbina, one of the researchers, and the lead author of a paper detailing these findings told 'The Verge' a technology magazine that all they had to do was 'flip the switch' and say "instead of going away from toxicity, what if we go towards toxicity?"

The findings have been shared in the journal Nature Machine Intelligence.

As per Urbina, the concern isn't that the AI came up with these "molecules, a lot of which look like chemical warfare agents," but "how easy it was." "A lot of the things we used are out there for free. You can download a toxicity dataset from anywhere," he added.

Reportedly, some of the AI-produced molecules were even "more toxic than VX" – a toxic nerve agent developed by the UK's Defense Science and Technology Lab in the 1950s. VX is a toxic agent which kills its victims through muscle paralysis.

<https://www.opcw.org/media-centre/news/2023/06/first-responders-train-real-chemical-warfare-agents-slovakia>

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