Working Group on the Strengthening of the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction

19 August 2024

English only

Fourth Session
Geneva, 19-23 August 2024
Agenda item 6
Identifying, examining and developing specific and effective measures, including possible legally-binding measures, and making recommendations to strengthen and institutionalize the Convention in all its aspects within the mandate of the Working Group

Report on UK Implementation of Article X of the Biological and Toxin Weapons Convention*

Submitted by the United Kingdom of Great Britain and Northern Ireland

I. Introduction

1. This paper provides an overview of the diverse range of programmes, projects and funding from UK public and private bodies in support of peaceful scientific, health and biosecurity cooperation and assistance under Article X. The paper is designed to meet the requirement set out in the Seventh Review Conference Final Declaration (paragraph 61) on the submission of national reports, at least biannually, on the steps taken by States Parties to implement Article X. This paper follows a similar structure to previous UK Article X reports[1][2][3], and provides an update on more recent UK initiatives covering the years 2022 to early 2024. The initiatives summarised in this paper cover significant cooperation and investment with over 50 countries and international bodies. The Working Group delivering its mandate to establish the international cooperation and assistance mechanism will provide even greater opportunity for scientific, health and biosecurity collaboration.

II. Government Departments, Agencies, and Funded Programmes

A. International Science Partnerships Fund (ISPF)

2. The International Science Partnerships Fund (ISPF) is a UK Government fund, managed by the Department for Science, Innovation and Technology to support research and innovation on the major themes of our time: Planet, Health, Tech and Talent.[4]

* The present document is being issued without formal editing.

[1] **BWC/MSP/2017/WP.7** - Report on implementation of Article X of the Biological and Toxin Weapons Convention Submitted by the United Kingdom of Great Britain and Northern Ireland

[2] **BWC/MSP.2019/MX.1/WP.5** - Report on implementation of Article X of the Biological and Toxin Weapons Convention Submitted by the United Kingdom of Great Britain and Northern Ireland

[3] **BWC/CONF.IX/6** - Implementation of Article X of the Convention Background information document submitted by the Implementation Support Unit (pages 22-31)

[4] **ISPF:** https://www.gov.uk/government/publications/international-science-partnerships-fund-ispf

3. The ISPF fund was launched in December 2022 and committed £337 million of investment up to 2025. The fund aims to support sustainable development through research and innovation partnerships.

4. Examples of partnerships to date funded under ISPF include:

- Japan-UK research collaboration in neuroscience, neurodegenerative diseases and dementia, with an initial fund of £1.8 million;
- India-UK partnership, building upon the existing ties from the Newton-Bhabha fund. This includes £5 million UK funding, matched by India, for research into farmed animal diseases and health, and £3.3 million UK funding, again matched by India, towards a technology and skills programme focused on AI, machine learning and bio-imaging;
- China-UK partnership on One Health for Epidemic Preparedness and Antimicrobial Resistance. This programme, co-funded by the ISPF and the Ministry of Science and Technology of the People's Republic of China, builds upon previous engagement between the UK and China. The programme is focused on host-pathogen interactions, mechanisms of pathogen resistance from generation to evolution, and identifying the drivers of multi-resistant pathogens.

B. Fleming Fund

5. The Fleming Fund[5], was established in 2015 as a UK aid programme-funding route in response to the UK Antimicrobial Resistance (AMR) review and the WHO Global Action Plan on AMR. The Fleming Fund primarily invests in country grants to support 23 countries as they build sustainable surveillance systems for AMR, and raising public awareness and responsible drug use internationally.

6. International locations to date include Senegal, Sierra Leone, Ghana, Nigeria, Eswantini, Malawi, Kenya, Tanzania, Uganda, Zambia, Zimbabwe, Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka, Myanmar, Timor-Leste, Indonesia, Laos, Papua New Guinea, and Vietnam.

7. The Fleming Fund works with international organisations, including the WHO, UN FAO, WOAH and UNEP, so that the international community can take strides together to tackle AMR. The Fleming Fund also works with partner countries to support the creation of national AMR action plans and strengthen their national surveillance systems.

8. One of the Fleming Fund's guiding objectives is to facilitate and support a robust One Health framework. Alongside the programme's grantees, the Fleming Fund is working to reduce antimicrobial use in animals and humans by increasing multi-sectoral antibiotic and resistant organism surveillance. This facilitates cross-disciplinary, One Health data that is shareable and used for countrywide decisions.

9. Working in partnership, Imperial College London and Imperial College Health Care NHS Trust established the Fleming Initiative. With a strong emphasis on global multidisciplinary collaboration, the initiative seeks to change the standard approach to AMR research by placing society at the centre and combine research, behavioural change, public engagement and policy to enable practical solutions to protect the health security of local populations around the world.

10. Other UK Government Funding for tackling AMR:

- In August 2023, the UK government announced up to £210 million in funding and support for the development of laboratories, disease surveillance systems, and a bigger global workforce to tackle AMR. The funding will also support the Fleming Fund's activities to tackle AMR in countries across Asia and Africa over the next three years. It serves to bolster the surveillance capacity in countries including Indonesia, Ghana, Kenya, and Papua New Guinea, with more than 250 laboratories set to be upgraded

[5] **Fleming Fund:** https://www.flemingfund.org/

and provided with new equipment. This investment includes genome sequencing technology to help track bacterial transmission between humans, animals and the environment;

- The UK announced £25 million in funds to collaborate with countries and territories in the Caribbean to strengthen surveillance systems for AMR to enable accurate monitoring of threats, through regional partners such as the Caribbean Public Health Agency and the Pan American Health Organisation;
- Up to £10 million was also pledged from 2023-2027 to help establish a global independent scientific panel for AMR, modelled on the success of other international panels such as the world renowned Intergovernmental Panel on Climate Change;
- The UK government announced funding of up to £50 million to partner with countries in Africa and build on local expertise to improve access to essential antimicrobial drugs. This builds on ongoing work by the UK Global AMR Innovation Fund (GAMRIF);
- In early 2024, the GAMRIF announced a £3.4 million fund: Fungal AMR Innovations for LMICS: Solutions and Access For Everyone (FAILSAFE). FAILSAFE, launched by the University of Exeter's MRC Centre for Medical Mycology, will fund research solutions to antifungal drug resistance, a major threat to human, animal and plant health, with major implications for global food security;
- In addition, £1.8 million was allocated to create a dedicated team in the Medicines and Healthcare products Regulatory Authority to support creating novel antimicrobials and diagnostics. The team will enable the UK to develop an in-depth knowledge of new technologies and build a joint understanding of antimicrobial resistance across global regulators, particularly in LMICs.

C. Vaccine Delivery and Pandemic Preparedness

11. To strengthen collaboration in outbreak analytics and public health intelligence, the UK government initiated the convening of the Global Pandemic Data Alliance (GPDA) under the UK's G7 presidency in 2021. The GPDA has worked to map interoperability among health information management systems and epidemiological analysis software solutions. As part of this, the 100 Day Mission (DM) was developed.

12. Announced in 2023, the UK government, through the UK Office for National Statistics (ONS), will partner with Argentina, Malawi and Nepal through the Pandemic Preparedness Toolkit (PPT) project. This project spans Africa, Asia, Europe and South America, with the aim of co-creating an accessible, sustainable, online toolkit that will build capability in national statistical officers for health surveillance in the event of future pandemics. It is estimated that the toolkit will be launched privately in 2025 and go public by 2027.

13. In December 2023, UK Aid awarded the Oxford Vaccine Group £7 million for research into the prevention and development of vaccines against five dangerous diseases with epidemic and pandemic potential, including Chikungunya, Mayaro and Marburg viruses, Plague, Q fever and Sudan Ebolavirus.

14. The UK Vaccine Network (UKVN) supports the development of vaccine and vaccine technology for infectious diseases with the potential to cause an epidemic in LMICs. The network also supports the development of policy tools and services relevant to vaccination. Using UKVN funding, four new research hubs were launched in 2023. These hubs focus on addressing challenges of vaccine manufacturing and delivery in LMICS across Africa and Southeast Asia, with particular focus on Dengue fever and Hand, Foot and Mouth disease.

15. In 2023, the UK government pledged £1 million in funds to The Bacterial Vaccines (BactiVac) network to accelerate the development of bacterial vaccines with a focus on pathogens with epidemic outbreak potential, particularly those relevant to LMICs. BactiVac currently has over 1,800 members from 88 countries, including 50% based in LMICs.

16. In December 2023, it was announced that the ISPF will provide £2.4 million to continue work under the the VAccine deveLopment for complex Intracellular neglecteD pAThogEns (VALIDATE) network. VALIDATE is an international network of researchers developing vaccines against globally significant diseases caused by complex intracellular pathogens including *Mycobacterium spp*, causative agents of tuberculosis and leprosy, *Leishmania* spp, the causative agents of Leishmania, and Burkholderia pseudomallei, the causative agent of Melioidosis. VALIDATE connects over 750 members from 312 institutes across 76 countries, of which 48 are within LMICs.

D. Fighting AIDS, Tuberculosis and Malaria

17. The UK is a founding member of the Global Fund to fight AIDS, Tuberculosis (TB) and Malaria, [6] and is the third largest historical donor, having invested £5.5 billion to date. The UK has also pledged a further £1 billion to the Global Fund, covering 2023 to 2026. From this, it is estimated that:

- 86 million mosquito nets will be distributed;
- 452,000 seasonal malaria chemoprevention treatments will be provided;
- Malaria treatment and care will provided for 18 million people; and
- 2 million people with HIV will receive antiretroviral therapy.

18. Further UK support for tackling malaria includes:

- An announcement on the 25 April 2022, to improve access to malaria drugs in sub-Saharan Africa. This included £7.4 million support for MedAccess to negotiate lower prices for vital malaria drugs and diagnostic tests for people in countries affected by the disease. The funding brings total UK support to MedAccess to £17.4 million;
- Collaboration between British scientists and Indian manufacturers resulted in two essential malaria vaccines being developed: RTS,S and R21. These have been used in Ghana, Kenya and Malawi, with 2 million children vaccinated since 2019, and Cameroon became the first country to give the vaccines to children routinely. It has also been announced that Sierra Leone, Liberia and Benin will begin their first roll out of the UK-Indian developed RTS,S vaccine, marking a significant milestone in ending malaria;
- Gavi, which is funded by the UK, is aiming to immunise more than 6 million children against malaria by the end of 2025.

19. Further UK support for tackling tuberculosis includes:

- A £4 million funding boost from the UK for the TB REACH programme will help test new approaches to increase the number of people diagnosed and treated for the disease in low- and middle-income countries. This support will provide health services to 500,000 people, detect cases of TB in 37,000 people, and save more than 15,000 lives.
- Projects the UK is currently supporting through TB REACH include:
    - Scaling up preventative treatment for TB in Brazil, Uganda, Vietnam, Zambia and Pakistan;
    - Integrating TB screening and services into maternal health services in Papua New Guinea and Afghanistan to tackle rising numbers of pregnant and post-partum women with the disease;
    - Using portable x-ray machines and AI to diagnose TB in Mozambique.

E. Biosafety, Biosecurity and Infectious Disease Surveillance, Detection and Diagnosis

20. The UK's **International Biological Security Programme (IBSP)** is owned by the Ministry of Defence Counter-proliferation and Arms Control Centre and managed by the

[6] **The Global Fund:** https://www.theglobalfund.org

Defence Science and Technology Laboratory (Dstl). Previously mentioned in Article X working papers, the IBSP continues to fund projects that improve the detection and identification of disease outbreaks, disease surveillance systems in partner countries, the safety and security of work with dangerous pathogens and support biosecurity education. Examples since 2022 include:

- Diagnostics, surveillance and capacity building in East Africa to support the safe and effective control of Brucellosis (implemented by the UK Animal and Plant Health Agency);
- Diagnostics, surveillance and capacity building in West Africa to control Avian Influenza and Newcastle Disease (implemented by the UK Animal and Plant Health Agency);
- Surveillance and control of vector-borne diseases in West Africa (implemented by the UK Animal and Plant Health Agency);
- An assessment of existing animal disease surveillance systems in a Ghana (implemented by the UK Animal and Plant Health Agency);
- Co-funding with Canada and US to support the universalisation and effective implementation of the Biological and Toxin Weapons Convention (BTWC) in Africa (implemented by the BTWC Implementation Support Unit);
- A collaboration with Canada and Portugal to strengthen compliance with the BTWC and to support implementation of the Africa Centres for Disease Control Biosafety and Biosecurity Legislative Framework in African Lusophone countries;
- A contribution to the 2023 Global Conference on the Emergency Management of Animal Disease Outbreaks (implemented by the World Organisation for Animal Health);
- Co-funding with Canada and the US Defence Threat Reduction Agency for INTERPOL's Global Biosecurity Enhancement Programme for Law Enforcement (implemented by INTERPOL);
- Co-funding with Canada to encourage responsible conduct in the life sciences and reduce biorisk posed by research with dual-use potential (implemented by the World Health Organisation);
- Strengthening national and regional capacities to implement the BTWC in Central Asia (implemented by the BTWC Implementation Support Unit);
- Laboratory physical security upgrades, including a project in Africa implemented with US partners;
- At the request of the Government of Tajikistan, a project co-funded with US Department of State, and in collaboration with the Tajik CBRN Safety and Security Agency, to develop biosecurity legislation in Tajikistan (implemented with support from the International Science and Technology Centre).

21. The Animal Health Systems Strengthening (AHSS) project is a £5 million multiyear (2022-2025) technical partnership project seeking to better protect, detect and respond to known and emerging diseases and health threats. AHSS partners include the UK's Department for Food and Rural Affairs , the Animal and Plant Health Agency, Veterinary Medicines Directorate, and the Centre for Environment, Fisheries and Aquaculture Science. AHSS focus is to deliver projects in collaboration with LMICs, including Ghana, Zambia and the Gambia, to build resilient health systems, and use UK expertise to help strengthen animal health systems.

F. Global Food Security and Crop Health

22. To protect livelihoods and global food security, the UK pledged £66.7 million to the International Fund for Agricultural Development (IFAD), the UN agency dedicated to supporting those living in extreme poverty rural areas.

23. In November 2023, the UK pledged up to £100 million to respond to food security crises and their impacts in hunger and malnourished hotspots, including Ethiopia, Sudan, South Sudan, the Sahel, Afghanistan and Malawi. In the same announcement, the UK pledged an additional £100 million to build resilience to climate shocks and provide food security for the most vulnerable in Somalia to avert future humanitarian crises.

24. The UK is developing a new collaborative centre as a part of a strategic partnership between UK Government, UK Science and the Consortium of International Agriculture Research Centres (CGIAR). The new virtual science hub, led by CGIAR, will focus to make global food systems more resilient to future shocks in a changing climate. It will link UK scientists with research initiatives that will develop crops that can withstand the impacts of climate change and are more disease resistant.

25. The AgriFood Africa Connect was part of the larger AgriFood Africa Programme, which ran from 2019 to 2024. Funded by the GCRF and delivered by UKRI, this programme provided £2.3 million in funding, enabling 86 collaborative projects in 13 countries focused on sustainable agricultural food systems in Africa, to reduce poverty and improve crop and livestock health. Example partnerships include:

- The Roslin Institute, UK and the Federal University of Agriculture, Abeokuta, Nigeria collaboration to secure the genetic future of the frizzle-feathered chicken, a crucial source of income and protein for rural populations. Through their partnership, information on feathering patterns and what genetic modifiers are linked to embryo mortality was generated, creating a vital step to securing the species future and food security in Nigeria;
- Scotland's Rural College and the Tanzanian Livestock Research Institute collaborated to investigate the use of affordable sensing system to determine the potential for disease detection and market integration for tick-borne diseases.

III. Academic and Research Councils

UK Research and Innovation (UKRI)

26. Launched in April 2018, UK Research and Innovation (UKRI) is a non-department public body sponsored by the Department for Science, Innovation and Technology. UKRI brings together seven disciplinary research councils, Research England, which is responsible for supporting research and knowledge exchange at higher education institutions in England, and the UK's innovation agency, Innovate UK. In 2022, UKRI published its five year strategy[7], and in 2023 it was announced UKRI's allocation settlement will increase to £8.9 billion for the financial year 2024-2025.

27. Under the Engineering and Physical Sciences Research Council, UKRI are funding the project Infection-AID: AI assisted genomic profiling to inform the diagnosis, personalised treatment and control of infections. This project, with £500,000 in funding from October 2023 to March 2025, is seeking to integrated AI-based tools into profiling software to reveal drug resistance mutation and transmission patterns, and generate informative reports for clinical and infection control decision making. This collaborative project, with partnership between the UK Health Security Agency and health ministries in Bangladesh, Philippines, Thailand, and Vietnam, is focused on infectious diseases of high global burden including TB, malaria and Klebsiella.

[7] **UKRI 2022 – 2027 Strategy**: https://www.ukri.org/publications/ukri-strategy-2022-to-2027/

28. UKRI announced in February 2024 collaborative research between South Africa and the UK to tackle a variety of health challenges. This £9 million programme is a partnership between the Medical Research Council and the South African Medical Research Council, and will focus on:

- Climate and health, one health and zoonosis that will address emerging, re-emerging, and endemic zoonotic, vector-borne and other diseases and AMR that are linked to climate change and the environment;
- Co-morbidity or multi-morbidity of infectious diseases and non-communicable diseases.

29. In March 2024, UKRI launched the UKRI-Southeast Asia collaboration on infectious diseases programme. This is a £21 million partnership programme, funded through a partnership between UKRI and seven cofounding organisations from various Southeast Asian countries including Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam. This programme aims to ease the burden of infectious diseases with epidemic or AMR potential in Southeast Asia. It will contribute to disease resilience, through spread prediction, control and eradication to ensure a healthier population worldwide.

30. Through the Biotechnology and Biological Sciences Research Council (BBSRC), which plays a pivotal role in fostering global partnerships in the areas of biological sciences, the BBRSC along with the Department of Health and Social Care, via the UKVN, have also funded Project OVEL, "One Health and accelerating vaccines for Ebola and Lassa fever". The project has developed surveillance and forecasting systems to improve the detection of these diseases, with studies focused on identifying and characterising the diversity of viral species within rats, as well as viral transmission pathways to humans. Collectively, this has established an in-country capacity within Nigeria to perform immune assays that monitor local immunity to these diseases. Partnership organisations include the University of Cambridge, University College London, the London School of Hygiene and Tropical Medicine, the Centre for Excellence in Genomics and Infectious Diseases in Nigeria, the Nigerian Centre for Disease Control, and the Public Health Agency of Canada.

31. In January 2024, the Sustainable and Resilient Aquaculture Systems in Southeast Asia was launched. This £12 million programme will be co-funded by the BBSRC and the Natural Environment Research Council. The programme will focus on enhancing the sustainability, resilience and productivity of aquaculture systems, with the goal of improving food and nutrition security, the natural environment and climate, local community wellbeing, livelihoods and economic development that specifically adapt and build aquaculture systems. Projects funded under this programme are due to commence late 2024 into early 2025.

IV. Industry

A. AstraZeneca

32. AstraZeneca is a British-Swedish pharmaceutical and biotechnology company with its headquarters in Cambridge, England. AstraZeneca has previously funded and launched various projects and partnerships relevant to Article X and these have been reported in previously UK working papers. Updates since 2022 include:

- AstraZeneca launched the Africa Health Innovation Hub which aims to use the latest science and technology, including AI and easily accessible apps, to improve healthcare for patients in Africa. This hub will see the partnership with MedSol AI solutions in South Africa and Tricog Health in Kenya and was launched in April 2023;
- In June 2023, AstraZeneca announced $400 million investment in its global AZ forest programme. This includes new and expanded projects in Brazil, India, Vietnam, Ghana and Rwanda to restore nature, promote biodiversity, and build ecological and community resilience;

- In August 2023, it was announced that AstraZeneca signed a manufacturing deal with China's CanSino Biologics Company to pursue the development of vaccines, including mRNA vaccines;
- In March 2024, AstraZeneca pledged £650 million investment into UK life sciences. This will see the UK Health Security Agency partnering with AstraZeneca to further boost vaccine efforts, with ongoing work to develop new, and as well as optimising current vaccines.

B. GlaxoSmithKline (GSK)

33. GSK is a British pharmaceutical and biotechnology company with global headquarters in London. From 2021 to 2023, GSK provided over £24 million in grant funding for health systems strengthening, communities, with early-career scientists and humanitarian support. This includes:

- Support for African-led research through the Africa Open Lab grant-giving programmes. Through this initiative, funding is provided to support infectious disease research, strengthen capabilities of African scientists and establish and develop scientific networks across Africa. To date, GSK have provided approximately £10 million in funding under this programme, supporting 20 projects and resulting in more than 130 scientific publications. Countries include Burkina Faso, Ethiopia, Gabon, Ghana, Kenya, Malawi, Mali, Nigeria, Senegal, South Africa, Tanzania, Gambia, and Uganda;
- £2.4 million in funding for a community-based health care health system strengthening programme in Kenya and Ethiopia. The programme focused on early prevention, diagnosis, referral and treatment for malaria, TB and HIV. This two year programme enabled 6,000 health care workers to be trained and 370 health facilities to be supported. Community education projects also resulted in 70% of community members now seeking prompt care.

34. With inclusion of GSK legacy companies, GSK has been involved in discovering, manufacturing, and making antibiotics globally available to patients for over 70 years. Continuing with this priority, in May 2024, GSK announced it would become founding partner of the Fleming Initiative and pledged an initial £45 million fund, where funding will support AMR research.

V. Recommendations

35. The UK encourages BTWC States Parties in a position to do so to take a One Health approach to international cooperation and assistance in their current implementation of Article X and in any future Article X related activities facilitated by the international cooperation and assistance mechanism.

36. As such, the UK recommends States Parties work together to reach consensus to establish the international cooperation and assistance mechanism at the earliest possible opportunity. The mechanism will strengthen and provide new opportunities for States Parties collaborative efforts on peaceful uses of biology.

37. The UK recognises that incorporating a One Health approach to the international cooperation and assistance mechanism will in turn facilitate international partnerships meeting biosecurity requirements across the broadest possible range of states parties from all UN regions.