

# PANORAMA



New tools to confront  
future biothreats

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## EDITORIAL

### New tools to confront future biothreats



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*The risks associated with the emergence or spread of animal diseases are hardly a new topic for veterinarians. In recent years, other scientific communities, experts and policy-makers have come to consider, quite rightly, that the benefits of actions to promote animal health are not restricted to improving animal health and productivity, they are also key components of any biothreat reduction policy. Animal pathogens can be used as biological weapons or for terrorism purposes.*

The OIE has been involved in biothreat reduction programmes, in particular through scientific publications (for example, in 2006, with the publication of *Biological disasters of animal origin*) and the organisation of its first global conference in Paris, France, in June 2015, and for many years it has been helping to alert the international community to these issues.

[The OIE Sixth Strategic Plan \(2016–2020\)](#) also highlights the determination of Member Countries to strengthen 'relations with the international security community in areas of common interest related to the prevention, preparedness, response and recovery from the deliberate use of animal pathogens to cause harm and natural disasters'. OIE teams therefore continue their efforts, with the support of our network of reference centres and partner organisations, to implement the [OIE Biological Threat Reduction Strategy](#), based on the concept of dedicated policies, outreach activities, building competencies and capacities, and global animal health information.

## OIE teams continue their efforts to implement the OIE Biological Threat Reduction Strategy

In November 2017, the OIE held a [second conference](#) on the subject in Ottawa (Canada), with the active support of Canada, the United Kingdom and the United States of America. The recommendations of the Paris conference (2015) were followed up and new avenues were explored in light of the latest scientific knowledge. This OIE *Bulletin* provides you with full information on the projects, initiatives and programmes in progress. Our warmest thanks go to those who contributed to the success of the conference and to drafting this dossier.

Biothreats remain a matter of concern, but new tools enable us to reduce the level of risk. In addition, confirmation of the synergies founded on excellent intersectoral collaboration between the public health and veterinary sectors and public safety services makes us optimistic about our ability to prevent, prepare for, and respond to these threats.

**Monique Éloit**  
**Director General**

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## PERSPECTIVES

### ▶ OPINIONS AND STRATEGIES

## Threat reduction in an era of changing bio-risk

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*Pandemics can now spread rapidly from one half of the globe to the other, and before a countermeasure can be developed, distributed, and dispensed.*

This year marks the 100th anniversary of an influenza pandemic that killed as many as 50 million people [1]. Unfortunately, the world remains unprepared for the next, inevitable, high-consequence biological event. Emerging technologies, while vital for creating new treatments, now make it possible to create and modify high-consequence agents. Terrorists and states remain interested in developing and delivering weapons of mass destruction and

disruption, including for use on the battlefield. Moreover, early warning for biological threats remains poor: there is no global biosurveillance system capable of detecting – let alone predicting – outbreaks in real time.

Nearly 75% of countries are unable to meet international biosecurity and biosafety targets. It is imperative to act now!

Despite the 2002 launch of the [Global Partnership Against the Spread of Weapons and Materials of Mass Destruction](#) in Kananaskis, Canada, when G-7 leaders recognised the importance of biological threats to global peace and security, most countries still lack the basic capability to stop outbreaks at the source, and nearly 75% are unable to meet international biosecurity and biosafety targets [2]. In addition, persistent challenges to the rapid development and distribution of countermeasures during biological crises remain unresolved, and no universal influenza vaccine exists. These are stunning statistics for 2018 – more than 16 years after the 2001 anthrax attacks, 15 years after severe acute respiratory syndrome (SARS), nine years after the 2009 influenza pandemic, and four years after the emergence of Ebola in West Africa. The risk is further compounded by a continued lack of consistent, independent and annual tracking, accountability, and evaluation of investments in threat reduction and health security.

## What can be done to accelerate measurable change?

**By 2020: Double the global biological threat reduction budget – and track outcomes.** Foreign Affairs, Defence, and Development officials should prioritise biological threat reduction – including global biosecurity measures – by working in conjunction with health and agriculture leaders. In a recent analysis, [the Nuclear Threat Initiative \(NTI\)](#) found that only four donor countries are responsible for over 90% of reported biological threat reduction assistance, totalling a mere USD 370 million when compared with much larger budgets for traditional security and disease-specific assistance and disease-specific health and development aid [2, 3]. The G-7 should show leadership by endorsing a major increase in global biological threat reduction investments and creating a clear, independent mechanism for financing and accountability that tracks commitments made by countries, donors and the private sector.

**In 2018: Endorse concrete stakeholder actions to reduce biological risks posed by advances in technology and incentivise biosecurity innovation.** New technologies are vital for the development of vaccines, therapeutics and diagnostics. However, biotechnology is out-pacing risk-mitigation measures and governmental oversight. The rapidly changing nature of biotechnology makes it necessary for scientists and engineers to mitigate risk during the experimental design and technology development phase. In 2018, global leaders in synthetic biology and virology should adopt specific actions to mitigate risk and incentivise innovations that improve biosecurity.

**By 2020: Publish and finance national action plans for reducing biological threats in at least 76 countries.** In 2016, at Ise-Shima, Japan, G-7 leaders made an historic promise to assist 76 countries and regions to achieve basic health security capability. Many countries have now undergone external assessments and identified specific gaps. But the matching and tracking of funding streams to fill these gaps has lagged. Now is the time to prioritise the development and publication of national action plans – and fund them. Stakeholders should drive creative incentives to leverage private-sector investment, such as a matching fund, as well as the publication

of a regularly published Global Health Security Index. [4, 5]

**In 2018: Chart a vision and create steps to drive global biosurveillance and pandemic forecasting by 2025.** Stove-piped data streams have hampered creative solutions to gathering and analysing biosurveillance data. In addition, novel approaches are needed to accelerate surveillance and diagnostic methods that can detect newly emerging and engineered pathogens. Global leaders should publish a consensus vision for achieving real-time disease surveillance and data-sharing. The effort should also include specific steps towards pandemic forecasting and novel approaches to enhance surveillance for novel biological threats.

New and deadly biological risks can destabilise economies, change political landscapes and disproportionately affect vulnerable populations. It is imperative to act now.

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## PERSPECTIVES

### The Biological Weapons Convention and its practical application

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*The Biological Weapons Convention (BWC) effectively prohibits the development, production, acquisition, transfer, stockpiling and use of biological and toxin weapons and is a key element in the international community's efforts to address the proliferation of weapons of mass destruction.*

The BWC was the first multilateral disarmament treaty to ban an entire category of weapons of mass destruction. It was negotiated from 1968 until 1972 and entered into force in 1975. In the years since then, increasing numbers of states have joined the Convention and it currently has 180 States Parties. A further six states have signed the Convention but are yet to ratify it, while another 11 states have neither signed nor ratified the Convention.

Although the BWC lacks a large international organisation, unlike other international instruments that deal with weapons of mass destruction, it does, however, codify a very strong global norm against biological weapons. As the Preamble of the Convention states, the use of biological weapons is seen as ‘repugnant to the conscience of mankind’. Importantly, the Convention provides a comprehensive ban on biological agents or toxins that are harmful not only to humans, but also to animals and plants. It is testament to the widespread acceptance of this norm that no country today identifies itself as possessing or seeking biological weapons and none argues that biological agents are legitimate weapons of war. The concept of deliberately using disease as a weapon of war has been thoroughly delegitimised.

However, the norm needs to be nurtured and maintained, and attention must be paid to advances in science and technology and changes in the nature of terrorism and armed conflict which have the potential to undermine the norm against biological weapons. As with many international agreements, it is not enough for states simply to join the BWC. The Convention requires each State Party to take measures to prohibit and prevent the development, production, stockpiling, acquisition or retention of agents, toxins, weapons, equipment and means of delivery by anyone under its jurisdiction, as well as parallel measures to prohibit and prevent the encouragement, incitement or assistance of others in any of these acts.

For much of its history of more than 40 years, the BWC has functioned as a traditional disarmament treaty, with the participation of national experts from Ministries of Foreign Affairs and Defence, and a small community of non-governmental observers. However, since the early 2000s, a more practical approach has been implemented, involving a much wider range of stakeholders, including relevant international organisations, such as the World Organisation for Animal Health (OIE). Under this approach, issues that have been discussed include, for example, biosafety and biosecurity, reviews of advances in science and technology, disease surveillance, assistance, preparedness and response in the event of the use of biological weapons, and capacity-building for developing countries.

More recently, it has become apparent that there is a lot of demand at the national and regional levels for discussions and practical activities around these topics. While the BWC lacks a large international organisation, its small three-person Implementation Support Unit (ISU) in Geneva has recently received many requests for assistance from developing States Parties. The ISU has not been provided with the resources to address these requests by itself but, fortunately, individual States Parties and regional organisations have stepped forward to support relevant activities. For example, in 2016 the European Union provided EUR 2.34 million in support of BWC implementation, and individual States Parties in a position to do so (i.e. Australia, Canada, China, Germany, India and Switzerland) have also provided support.

It is crucial that BWC States Parties continue to support the activities that highlight it as a ‘living treaty’

Whereas, in the past, the BWC was rather a ‘monolith’ in the landscape of international measures against biological weapons, it has now evolved into a hub with a wider network of different actors working on its practical implementation. In mid-2018, a series of Expert Meetings on specific technical topics will take place in Geneva. There will be technical discussions on all of the issues mentioned above. In addition, certain States Parties have

already approached the ISU, willing to support any preparatory meetings in different regions of the world.

At the end of the day, the BWC is the only multilateral and comprehensive forum in which all of the issues and challenges described above can be discussed. It is therefore crucial that States Parties continue to support the activities that highlight the BWC as a 'living treaty' - for example, promoting universality to encourage more states to join the BWC, improving the [Assistance and Cooperation Database](#) and activities to support the provisions of the BWC that relate to practical issues, such as international cooperation, national implementation and preparedness and response.

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## PERSPECTIVES

### Global Rinderpest Action Plan and national preparedness

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***Rinderpest remains a threat due to the potential escape of the virus from facilities with remaining stocks. The re-emergence of rinderpest could have a devastating global impact, given the current immunologically naïve populations.***

Rinderpest was historically one of the most dreaded diseases of cattle and other artiodactyls (even-toed ungulates). Decades of global effort, coordinated by FAO and the OIE, along with other partners, succeeded in the eradication of rinderpest, and global freedom from the disease was declared in 2011.

Since the eradication of rinderpest, the FAO/OIE Joint Rinderpest Secretariat has been entrusted by Member Countries to develop and update a plan of action for international post-eradication activities to maintain global

freedom, and to establish the principle of international oversight and regulation of facilities that hold materials containing rinderpest virus (RPV). The strategy includes the development of a Global Rinderpest Action Plan (GRAP) to provide a guideline for coordinating a national, regional and international response in the case of rinderpest re-emergence.

Today, finalisation of the GRAP remains a priority of the Rinderpest Secretariat. Coordinated global preparedness and rapid action in response to rinderpest re-emergence would mitigate the effects of an outbreak, allowing control and re-eradication to be achieved effectively and affordably. The GRAP is the global operational plan that complements all other national, regional and international contingency plans for rinderpest. It aims to ensure continued global freedom from rinderpest by outlining the actions to be taken, and by whom, in the event of an outbreak. The GRAP is a tool to help countries identify and prioritise gaps that should be addressed when preparing for a rinderpest incursion. By identifying relevant stakeholders and strengthening international plans, the GRAP provides decision-makers with the necessary confidence to call for the destruction of remaining stocks of RPV.

Let's make the Global Rinderpest Action Plan a robust guiding tool for preparedness, mitigation, detection and response to any rinderpest event

## Simulation exercises

Simulation exercises are an important component of emergency preparedness to validate written contingency plans, equipment and training. FAO coordinated the Regional Rinderpest Table-Top Exercise, in close collaboration with the OIE and African Union Inter-African Bureau for Animal Resources (AU-IBAR), in November 2017 to validate the initial draft of the GRAP and to assess if countries understood the Plan, and had the capacity to implement it. The exercise took place at the headquarters of AU-IBAR, in Nairobi, Kenya, and was attended by representatives from the region (the Democratic Republic of the Congo, Eritrea, Ethiopia, Kenya, Mozambique and South Sudan), the Pan-African Veterinary Vaccine Centre, AU-IBAR, FAO, the OIE and the Intergovernmental Authority on Development (IGAD). Participants engaged in active discussions surrounding a simulated outbreak of rinderpest in a fictitious country in Africa and the evolution of this outbreak. The exercise was designed to identify the countries' strengths and weaknesses in detecting, responding to and recovering from an outbreak, and to update the national contingency plan accordingly in the next 12 months.

Major strengths identified from this exercise were the value of regional simulations to encourage continued preparedness and exchange valuable information, and the existing systems at the national level for reporting disease outbreaks in animals. Areas for improvement included the need to expand the existing RPV vaccine reserves, to make diagnostic tools available at the national level, and to provide immediate access to national and regional emergency funds for early detection of, and prompt response to, a rinderpest incursion.

The main conclusion of the exercise was that participating countries are not adequately prepared at this time for a rinderpest re-emergence. Having said that, countries are now aware of the importance of maintaining vigilance for the re-emergence of rinderpest and enhancing their contingency plans. International and regional organisations helped to identify gaps to enhance preparedness for a rinderpest incursion.

The next step is to conduct a similar simulation exercise for Asia in March 2018. The outcomes of the two exercises

will enable further improvement of the GRAP, to make it a robust guiding tool for preparedness, mitigation, detection and response to any rinderpest event. The Rinderpest Secretariat will publish the GRAP later this year.

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[Maintaining global freedom from rinderpest](#)

[The OIE Rinderpest Portal](#)

[Rinderpest Vigilance](#)

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## PERSPECTIVES

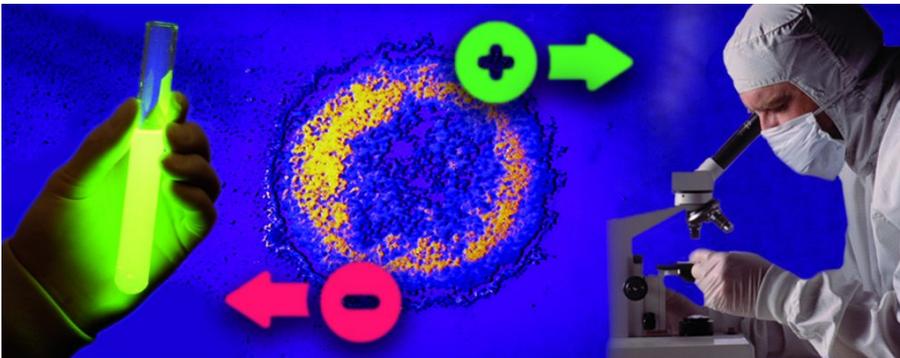
### Perspectives on dual use

Can security be ensured by regulation?

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*The term 'dual use' has become a catchphrase for advances that can be used for good but also for malevolent purposes, including in the life sciences.*

Biological threat is a topic that moves in and out of the public perception. Most of the time it holds no special interest; at other times, it suddenly dominates the headlines and decision-makers are pressured to regulate real or perceived risks and threats. Its reappearance in the public arena may be related to specific diseases or pathogens, such as the 'anthrax letters' in the United States of America [1], the outbreak of foot and mouth disease in the United Kingdom [2], the epidemic of Ebola in West Africa [3] or the emergence of severe acute respiratory syndrome (SARS) [4]. Sometimes it gains new emphasis because of scientific developments, such as genome editing [5], artificial intelligence, synthetic biology or nanotechnology [6].

We need research on these high-consequence pathogens and scientific advances to keep us safe, to develop new vaccines and treatments, and to find new ways to protect ourselves, as well as safeguarding animals and plants. However, high-consequence pathogens and emerging technologies have significant inherent risks that come partly from the possibility of accidental release but also from their potential misuse for malicious purposes. These two sides of the same coin are described as the 'dual-use dilemma'.

The term 'dual use' originally described a technology that could be used for military but also civilian purposes, e.g. microwaves, satellites or the Internet. Over time, the term has become a catchphrase for advances that can be

used for good but also for malevolent purposes, including in the life sciences. The possibility that a major animal disease outbreak might be caused intentionally continues to be widely discussed, this includes agroterrorism (directed against livestock to cause economic damage) or bioterrorism (directed against livestock and the food chain, including zoonotic disease). The likelihood of such an event is directly correlated to the capabilities of potential perpetrators to get hold of the relevant material, technology and knowledge. While science and technology are the backbone of advances in human and animal health, research can be misused. How, then, can we protect ourselves? How can the risk be mitigated without hampering our advancement in science?

## There are different systems in place to deal with these risks

The first of these is laboratory biosafety: avoiding accidental exposure to biological agents. Most countries and institutions have established appropriate regulations and provisions for this. The second is a security system aimed at improving biological security<sup>(1)</sup>. In addition to securing physical access to facilities, those in charge must also consider the use of and access to information and technology, and this is where the true dilemma sets in. The exact same advances that bring technological and medical breakthroughs could have the greatest potential for misuse. In addition, these technologies evolve very fast. It is impossible to keep pace with these developments as they happen – especially in a globalised world, where national regulations have only limited effect.

While we wait for regulators and regulations to catch up, the answer to the question ‘Can we mitigate these risks with minimal impacts on research and development?’ is yes – through responsible conduct. We need scientists who understand not only the benefits that their work creates for society but also the risks. Sound risk-benefit analysis is the key to safe and secure research.

However, scientists make up just one group of stakeholders. There are many more, making this an intersectoral issue that must be addressed at the health–security interface. Other stakeholders with important responsibilities include the funders, who make the initial decisions on which research should move forwards; publishers, who decide which results will be shared openly; teachers at universities and elsewhere, who should not only provide knowledge but also teach ethics to their students; policy-makers, who regulate fields of research or export materials; and the general public, who could be at risk but who also benefit the most from scientific progress.

(1) Biosecurity means: ‘a set of management and physical measures designed to reduce the risk of introduction, establishment and spread of animal diseases, infections or infestations to, from and within an animal population’ [7]

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[More information...](#)

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## DOSSIER

### The Global Virome Project

#### The power of Big Data - ending the threat from emerging viral diseases

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*We live in an era when the threat posed by emerging viral diseases is unprecedented in human history. Viruses that we have never seen before emerge with increasing frequency, driven by our expanding population, surging global travel, and our domination of the environment.*

We live in fear of a new pathogen suddenly emerging and sweeping through every household, through every

community, irrespective of borders or social and economic standing. This fear alone can cost billions, as we saw in the panic and social breakdown caused by Ebola and Zika virus. This is heightened by decades of living with the HIV-AIDS pandemic, our inability to rapidly control West African Ebola, and in the disturbing images of Zika's pathology. Yet the world remains unable to predict when, where, or from what species the next emerging virus will break out.

However, the dire consequences of severe acute respiratory syndrome (SARS), avian flu, 'swine' flu, Ebola, Middle East respiratory syndrome (MERS) and Zika virus are, the authors believe, avoidable. Successfully preventing pandemics and the uncontrolled spread of epidemic viruses, such as Ebola, requires us to think and act differently.

## **Rapid advances in health science and a technology revolution allow us, for the first time, to imagine a world without emerging viral threats**

The problem with emerging threats is that they originate in a seemingly endless pool of viruses carried by our relatives in the animal kingdom. We already know some of these – HIV, which spilled over from chimpanzees to people to cause the AIDS pandemic, Ebola carried by bats in Africa. But recent estimates put the total number of animal viruses that could threaten us at more than 1.5 million, spanning 24 viral families [1, 2]. Compared to the more than 260 viruses known from humans, this viral dark matter represents 99.9% of the potential pandemic threat. It means that, for every known strain of Ebola virus, there are likely tens of thousands of unknown 'Ebola-like' viruses circulating in wildlife that could emerge in the future. The same holds for HIV and retroviruses, SARS and coronaviruses, and Zika and flaviviruses. Importantly, these novel viruses are a threat not only to human populations but to livestock as well, as we see repeatedly with avian flu, and they pose significant challenges to food safety and food security.

| We can prepare for emerging viruses before they jump to us

The [Global Virome Project \(GVP\)](#) is designed to target this vast pool of 'unknown' future threats [3]. GVP is a coordinated global partnership to document and characterise the vast majority of the planet's viruses that could threaten people. The vision is that if we can do this in wildlife – their natural hosts – we can prepare for viruses before they jump to us. This will transform our public health culture from one that responds to the latest outbreak, to one that predicts and prevents future pandemic and epidemic threats. The volume of new data produced by the GVP will enable disruptive approaches for the development of biomedical and non-medical countermeasures.

Imagine how Big Data virology could transform vaccine and drug development. Tens of thousands of new viruses will allow biotechnology to move from single viral therapeutics and vaccines to those that target a whole family of viruses. In addition, as we build up a picture of every virus's ecologic profile – which species it infects, where on the planet it is found, which communities and their livestock are exposed to it – we can target our vaccines and drugs to the people on the front line of the next emerging disease.

The GVP will do for emerging viral threats what the Human Genome Project is just beginning to do for personalised medicine. With it will come an even greater return on investment because pandemics and uncontrolled epidemics

do not just cause sickness, misery and death. They also affect a global economy that is increasingly dependent on open borders, free trade and the global movement of goods and services.

At the core of the GVP is an international alliance that will produce the next generation of local scientists, and promote equitable access to data and benefits. With global support for the GVP, the world will be better prepared to deal with the escalating spillover of deadly viruses. In short, the outcome of the GVP will be the beginning of the end of the Pandemic Era.

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## AROUND THE WORLD

### ▶ OIE ACTIONS

## OIE guidelines and biothreat reduction

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*The increased movement of people, animals and materials throughout the world, plus the continuing intensification and concentration of animal production systems, have increased the risk of biothreats. Combined with fragile and failing nation states and the rise in non-state actors, this increases the potential for the accidental release or intentional terrorist use of biological agents targeted at animals and humans.*

The OIE is a committed partner in strengthening global health security. This commitment is already reflected in the Sixth Strategic Plan (2016–2020), in the OIE Biological Threat Reduction Strategy and through Global Conferences on Biological Threat Reduction. [The OIE Biological Threat Reduction Strategy \(2015\)](#) identifies key areas in which the OIE can address biological threats, such as calling upon its expertise to draft international standards and

guidelines for national Veterinary Services to strengthen their capacity in this arena.

A survey of OIE European and West Asian Member Countries in 2014 demonstrated a gap in Veterinary Services preparedness, with approximately 47% of countries lacking either the authority or capacity to respond to intentional biological threats [1]. A key finding in the survey was the lack of standards of many countries for biothreat and disaster response.

The OIE formed an ad hoc working group in 2017 to draft guidelines for biothreat reduction ([Guidelines for investigation of suspicious biological events](#)), with the scope to consider the natural, intentional or accidental emergence of animal diseases, including zoonotic diseases. Experts from Veterinary Services and laboratories, academia, law enforcement and policy sectors took part in developing draft guidelines for national Veterinary Services to use as a framework to develop their capacity to prepare for and respond to biothreats, and to evaluate their current biothreat capability. These guidelines take into consideration existing and publicly available guidance and materials from a number of sources, including the appendices of the [United Nations Secretary-General's Mechanism for Investigation of Alleged Use of Chemical and Biological Weapons](#).

In drafting the guidelines it became clear that many of the functions required to effectively respond to a suspicious biological event may fall outside the daily operational activities of many Veterinary Services. Perhaps the most obvious involves responding to suspicious biothreat events from a criminal and terror perspective. Such an approach would include different methods of interviewing, sample collection, the preservation of evidence, and preparedness to testify in prosecution court cases.

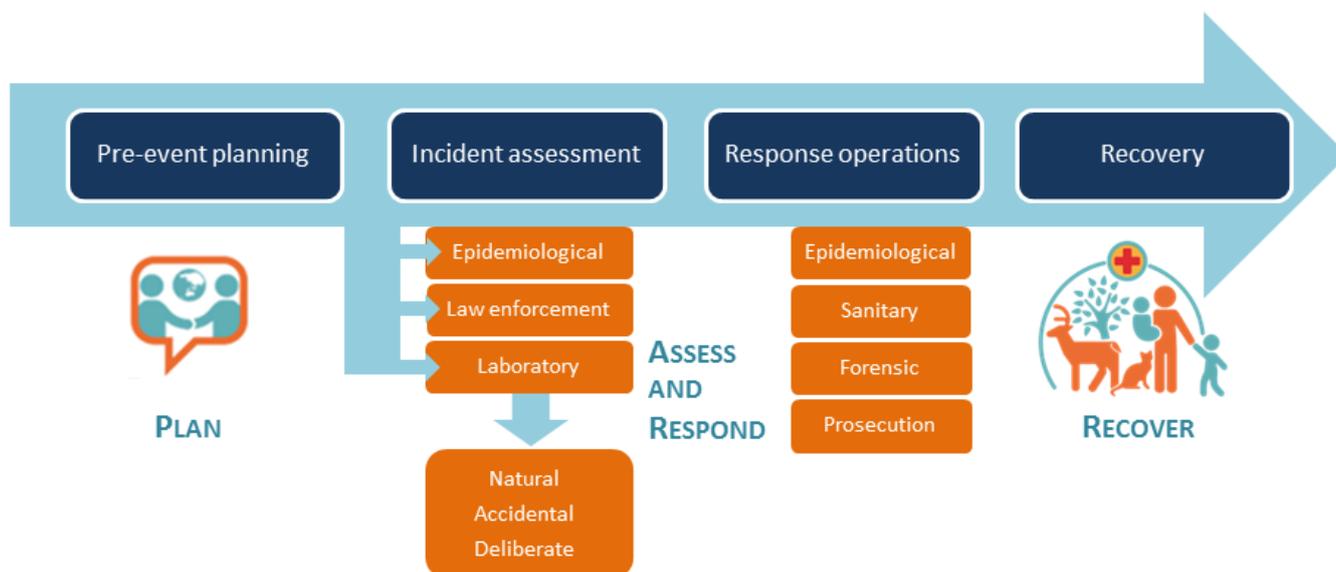
To address the lack of standards for biothreat and disaster response in many countries, an OIE *ad hoc* group has drafted guidelines on biothreat reduction

## **These guidelines cover both the organisational as well as the operational requirements for Veterinary Services.**

The foundation for biothreat reduction is the legislative authority for Veterinary Services to lead or support the investigation of biological events where criminal activity is suspected. Investigating these types of event generally requires the cooperation and collaboration of multiple stakeholders, including law enforcement, with Veterinary Services taking a supportive role to national investigation leads. Other organisational aspects of the guidelines include developing the leadership and personnel, facilities, and financial capability to address biothreats. A particular focus of the guidelines is highlighting the multisectoral nature of responding to biological events and the need to engage multiple partners, stakeholders and the public.

The OIE draft 'biothreat reduction guidelines' also address the operational aspects of preparedness and response; focusing on planning, the development of standard operating procedures and educational and training requirements. The guidelines include a table of indicators of suspicious biothreat events to assist in determining how to approach an investigation. These indicators include the appearance of disease in new species, in new areas, the reappearance of eradicated diseases, or novel agents. Further operational areas covered by the guidelines include: logistics, joint investigations, safety and health, laboratory operations, crisis management centres and

crisis communications.



The OIE *Guidelines for investigation of suspicious biological events*, combined with links to technical resources, will provide national Veterinary Services with an invaluable tool to develop, strengthen and assess their capacities in the biothreat environment.

<http://dx.doi.org/10.20506/bull.2018.1.2770>

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## AROUND THE WORLD

### ▶ NETWORK INITIATIVES

## Regional table-top exercise for countries of the Middle East and North Africa

### AUTHORS

[Mariano Ramos](#)<sup>(1)</sup>, [Rachid Bouguedour](#)<sup>(2)</sup> & [Alessandro Ripani](#)<sup>(2)</sup>

(1) National Service for Agri-Food Health and Quality (SENASA, Argentina). Former staff member of the Programmes Department, World Organisation for Animal Health (OIE)

(2) World Organisation for Animal Health (OIE) Sub-Regional Representation for North Africa (Tunis, Tunisia)



The [OIE](#) organised a workshop with a table-top exercise (TTX) in Tunis, Tunisia, from 11 to 13 July 2017. The exercise, which was held in collaboration with [INTERPOL](#), [UNICRI](#), [FAO](#) and [WHO](#), brought together experts in epidemiology, laboratory work and communication, as well as decision-makers from both the veterinary community and law enforcement/security sectors from eight countries of the Middle East (Egypt, Iraq, Jordan and Lebanon) and North Africa (Algeria, Libya, Morocco and Tunisia).

The main objective was to establish functional links between the veterinary and security/law enforcement sectors. Identifying gaps, strengths and weaknesses within the two sectors was also part of the exercise, so that sustainable recommendations could be made to improve preparedness and response during the suspected and/or deliberate misuse of an animal pathogen. The 'Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise' (IZSAM, Teramo, Italy) and 'Centre de Coopération Internationale en Recherche Agronomique pour le Développement' (CIRAD, Montpellier, France) took part as OIE Collaborating Centres, providing presentations and relevant materials from the perspectives of biosecurity and risk management. The TTX simulated the deliberate release of rinderpest virus in

different countries, as working groups discussed and analysed a range of aspects of preparedness and rapid response.

## Methods

As this TTX centred around an animal health issue, the exercise used a simulated scenario of the deliberate release of an animal pathogen in various countries. In this context, a fictitious situation was described, which explored the malicious release of rinderpest virus (which was eradicated from animal populations in 2011) from a laboratory.

### The TTX was divided into three components:

- Component 1: Early-warning indicators (Part I)

The session first discussed the clinical presentation of a gastroenteric syndrome with a high mortality rate and other clinical signs in cattle on a farm located in Country A. It was hoped that a discussion would take place and that the participants would decide on the first and most appropriate approach to tackle a biological event that appeared to be due to natural causes, and to determine the possible source of infection.

- Component 2: Early-warning indicators (Part II)

This session addressed management processes for animal disease control when clinical presentations of a similar syndrome occurred on a farm in Country B. The same animal pathogen was confirmed. Information from the law enforcement sector was able to determine that the pathogen had possibly been released intentionally. The expected discussion was designed to examine aspects of the decision-making process, effective communication, notification, biosecurity, etc.

- Component 3: Investigations: animal health and law enforcement working together

With rinderpest confirmed, the session triggered discussions on how best to approach the investigation in the context of the deliberate release of an animal pathogen. Recommendations were sought on cooperation in a crisis situation, communication management and appropriate frameworks and agreements to facilitate collaboration between animal health and law enforcement organisations as they conducted a joint investigation.

## Conclusions

Discussions and recommendations addressed the following subjects:

- joint investigations between animal health and law enforcement organisations
- biosecurity and bio-risk management
- inter-agency operability
- border security
- working together
- risk communication

- preparedness and response.
- 

This TTX stemmed from the [OIE Biological Threat Reduction Strategy \(2015\)](#), which recommends holding international disease-simulation exercises to involve key players in the security and health sectors, to identify gaps and improve cooperation. Follow-up activities are essential to create opportunities for agencies to continue to interact at the national and international level. Using scenario-based discussions, participants gained new insights into potential emerging bio-threats, as well as learning how to strengthen cooperation and identify new opportunities to prevent, detect and respond to bioterrorism.

## AROUND THE WORLD

### ▶ NETWORK INITIATIVES

## The OIE Veterinary Legislation Support Programme

Addressing the legal framework for biological threat reduction in the veterinary domain

### AUTHORS

[David Sherman](#)

Chargé de Mission, Veterinary Legislation Support Programme, Regional Activities Department, World Organisation for Animal Health (OIE)



*Veterinary legislation is an essential part of a nation's infrastructure. It provides the powers and authorities necessary for Veterinary Services to carry out their key functions in the veterinary domain efficiently, in order to ensure public safety and promote the public good.*

These functions include epidemiosurveillance; early detection and reporting of animal diseases, including zoonoses; rapid response to and prevention and control of animal disease and food safety emergencies; animal product food safety; the welfare of animals; and the relevant certification of animals and animal products for export.

In the face of growing global demand for foods of animal origin, increasing world trade, shifting patterns of disease associated with climate change, the emergence and re-emergence of diseases that can rapidly spread across international borders and the growing risk of bio-terrorism, Veterinary Services must be supported by effective and modern legislation.

Yet, in many countries, veterinary legislation is outdated and simply not adequate to meet current and future challenges and societal expectations. In response to this situation, the OIE established the [Veterinary Legislation Support Programme \(VLSP\)](#) in 2008, to help its Member Countries recognise and address their needs for modern,

comprehensive veterinary legislation.

The main activity of the VLSP is the Veterinary Legislation Identification Mission. At the request of a Member Country, a team of OIE VLSP experts, including at least one veterinarian and one lawyer, review the country's existing veterinary legislation in relation to the OIE standards on this subject, as contained in [Chapter 3.4. of the OIE Terrestrial Animal Health Code](#). The team identify gaps and weaknesses in the existing legislation and make recommendations for reform. These recommendations are contained in an end-of-mission report.

**Since the beginning of 2016, with project support from the Government of Canada, the OIE has been able to integrate legal considerations concerning biological threat reduction (BTR) into the overall mission of the VLSP**

Through this project, the VLSP is working to strengthen the veterinary legislation of OIE Member Countries. Its aim is to provide a legal framework that will allow OIE Members to more effectively prevent, identify and mitigate biological threats within the veterinary domain. A number of activities have been carried out under this project, as follows.

- In December of 2016, a training workshop on BTR and veterinary legislation was held at OIE Headquarters in Paris for 28 OIE VLSP experts, including lawyers and veterinarians. The objective of the training was to improve the capacity of VLSP experts to assess a country's veterinary legislation in the context of BTR during VLSP Veterinary Legislation Identification Missions.
- Pilot Veterinary Legislation Identification Missions were conducted in Belize and Panama in 2017, to test the feasibility of carrying out the standard mission with an added focus on evaluating legislation in relation to BTR. The outcomes of these missions were positive, providing guidance for the successful implementation of future missions. Another such mission is scheduled for Guatemala in 2018.
- A workshop on legislation and BTR for nine Member Countries of the Regional International Organization for Plant Protection and Animal Health (OIRSA) was held in Panama City, Panama, in June 2017. A representative was invited from each of three different sectors – Veterinary Services, Public Health and National Security – from each country. The workshop included a simulation exercise to raise awareness of biological threats resulting from the intentional introduction of a zoonotic pathogen, and the importance of interagency cooperation in biological threat mitigation. The exercise was well received, with participants from several countries noting that they would like to repeat the exercise at home, with a broader range of agencies.

All these activities are based on recognising the need for a strong legal framework if countries are to take effective action in the face of biological threats, and the necessity of interagency and international cooperation to achieve successful outcomes. Furthermore, these activities support the OIE's Sixth Strategic Plan (2016-2020), which identifies the reduction of biological risks, whether natural, accidental, or intentional, as a priority for OIE Member Countries.

<http://dx.doi.org/10.20506/bull.2018.1.2771>

## AROUND THE WORLD

### ► NETWORK INITIATIVES

## Working together to reduce biological threats in animal agriculture

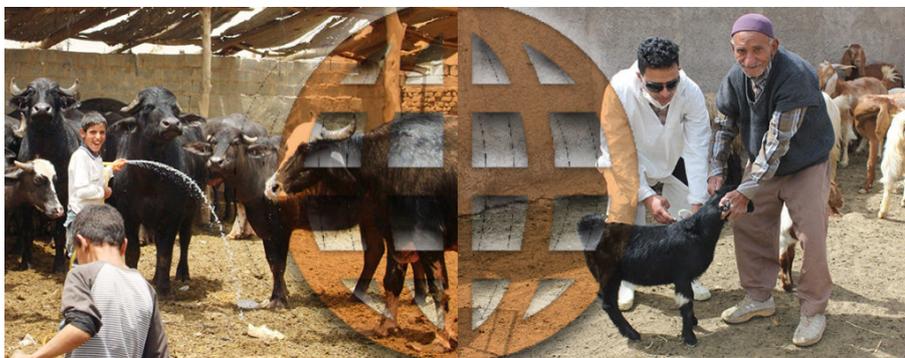
### AUTHORS

[Melissa Berquist](#)

Director, Institute for Infectious Animal Diseases, Texas A&M University, United States

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*The views expressed in this article are solely the responsibility of the author(s). The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by the OIE in preference to others of a similar nature that are not mentioned.*



***Creating partnerships and promoting a world that is safe and secure from infectious disease threats helps to enhance health and security for all.***

In 2014, the [Institute for Infectious Animal Diseases \(IIAD\)](#), a unit of the Texas A&M University System, was designated as the OIE Collaborating Centre in the specialised area of biological threat reduction, to support OIE activities for this mission. Both the OIE and IIAD have a long-standing practice of working in partnership with existing organisations in academia, government and private industry, and each believes that animal health is best advanced by assisting, coordinating and making use of existing resources and infrastructure, wherever possible.

Prioritising this topic by designating a dedicated Collaborating Centre further demonstrates the importance of

capacity-building, scientific collaboration, and evidence-based practice in promoting the OIE vision of 'protecting animals, preserving our future'.

The modern agricultural economy in the United States and in many other countries is highly dependent upon two things: freedom from disease, and trade. After the outbreak of an infectious livestock or poultry disease, it is imperative to be able to effectively implement science-based standards and demonstrate freedom from that disease, in order to limit the loss of revenue while still ensuring safe trade and protecting food security. A better understanding of global animal health and zoonotic threats improves our disease preparedness, prevention, detection and response. Supporting the development of science-based standards and providing effective tools and training for disease surveillance, control and eradication are at the core of IIAD's mission.

## IIAD engagement with the OIE

IIAD engagement with the OIE to date has resulted in substantial, meaningful, national and international opportunities to share our expertise, perform analysis and develop curricula in support of the OIE mission. During the past three years, this relationship has enabled IIAD to work together with the OIE on a two-year project to develop global veterinary standards that provide international guidelines for laboratory, animal health and veterinary public health para-professionals in 181 OIE Member Countries. This project will result in standardised competencies and curriculum guidelines for veterinary para-professionals, similar to the ['Day 1 competencies' for graduating veterinary students](#). The para-professional sector is an essential part of the veterinary services infrastructure in many countries. Para-professionals also provide much-needed services in countries with no or limited veterinary infrastructure. Improving the quality of their educational resources will produce tangible benefits to both global health and the economy.

IIAD has been working together with the OIE on a project about the competencies and curriculum for veterinary para-professionals

IIAD has also had the opportunity to assist with delivering high-priority technical patch fixes to the existing OIE World Animal Health Information System (WAHIS), through its partnership with the Texas Center for Applied Technology, a unit of the Texas A&M Engineering Experiment Station. The OIE World Assembly of Delegates recently voted to completely overhaul the entire system, a much-needed modernisation that will facilitate transparent communication and help to address Member Country needs through improved inter-operability and system flexibility. In addition, IIAD has undertaken an in-depth analysis of WAHIS data to assess the [OIE PVS Tool](#), which has led to the development of a [PVS 'think tank'](#) within the OIE with the goals of identifying new assessment pathways for PVS, determining how PVS data can be further analysed in WAHIS, and developing a framework of ideas for developing future competencies within the OIE PVS Tool.

Health and security already exist and it is our job as policy-makers, regulators, researchers, educators, producers and students to build upon that foundation so that people everywhere can have access to an affordable, safe and nutritious food supply. Solutions needed to improve animal and public health, and to promote global health security, can only be produced through collective action. Collaboration and partnership are needed to support the OIE's mission, improve Veterinary Services worldwide, and create a world that is safe and secure from infectious disease

threats.

<http://dx.doi.org/10.20506/bull.2018.1.2772>

## AROUND THE WORLD

### ▶ NETWORK INITIATIVES

## The Emergency Management Centre for Animal Health

Building on past success to meet the needs of the future

### AUTHORS

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*The views expressed in this publication are those of the author and do not necessarily reflect the views of the Food and Agriculture Organization of the United Nations. Also the designations employed and the presentation of material in this information product do not imply the expression of opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Content and errors are exclusively the responsibility of the author.*



*The Crisis Management Centre for Animal Health (CMC-AH) was first launched in 2006 at FAO Headquarters, Rome, in partnership with the OIE. The Centre filled a gap, becoming a global resource for rapid intervention and assistance in high-impact animal disease outbreaks. More specifically, it plays a vital role as a mechanism for rapidly deploying expert teams to Member Countries.*

The CMC-AH was initially established in response to the global outbreaks of highly pathogenic avian influenza

H5N1. As global priorities changed, its mandate was expanded to include other high-impact animal diseases, including zoonoses. The CMC-AH works in complementarity with joint FAO/OIE mechanisms, including the Global Network of Expertise on Animal Influenza (OFFLU) and the tripartite Global Early Warning System (GLEWS) (with the World Health Organization), and supports the strategies of both the FAO and OIE. The CMC-AH also promotes OIE standards and country obligations in its intervention and implementation strategies.

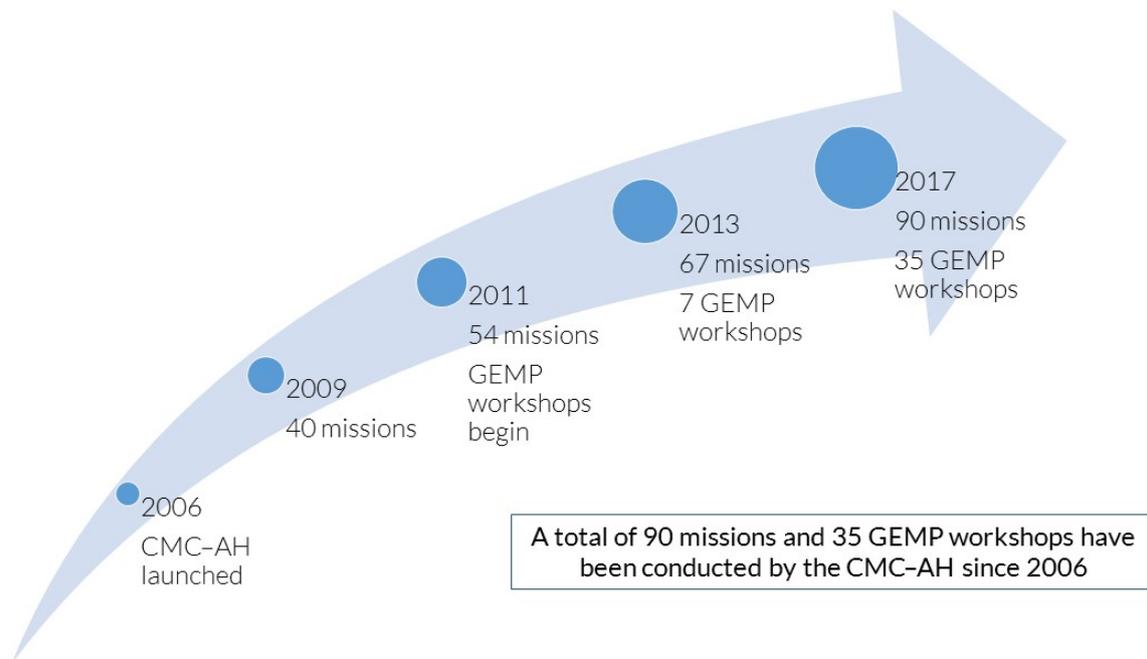
| The world must be prepared to prevent and mitigate, detect, respond swiftly to and recover from high-impact animal diseases and zoonotic emergencies

Within FAO, the CMC-AH operates as a joint platform for the Divisions of Animal Production and Health (AGA), and Emergency and Rehabilitation (TCE). The CMC-AH supports AGA to strengthen veterinary systems, improve livestock production practices and enhance policies to improve the sustainability and stewardship of the livestock sector, in order to reduce hunger and poverty. The CMC-AH supports TCE with its humanitarian efforts to avert food and agricultural threats and crises, and strengthen the resilience of agricultural livelihoods.

The CMC-AH has provided emergency response support during a variety of aquatic and terrestrial animal disease events in Member Countries over the past decade. Recipients consistently reported tangible benefits from CMC-AH emergency response missions, which were often followed by FAO technical cooperation projects and OIE capacity-building tools, provided under the PVS Pathway, or other projects to enable the implementation of the mission's recommendations. CMC-AH missions are also supported by data from OIE PVS Pathway missions and the OIE's World Animal Health Information System. In 2011, the CMC-AH expanded its role into emergency preparedness to address the needs of countries by providing guidance and training through [\*Good Emergency Management Practice: The Essentials\*](#).

**CMC–AH missions for the following transboundary animal diseases:**

- African swine fever (ASF)
- Anthrax
- Brucellosis
- Contagious bovine pleuropneumonia (CBPP)
- Ebola virus disease
- Foot and mouth disease (FMD)
- Highly pathogenic avian influenza (HPAI)
- Middle-East respiratory syndrome coronavirus (MERS-CoV)
- Newcastle disease
- Peste des petits ruminants (PPR)
- Porcine reproductive and respiratory syndrome
- Rabies
- Rift Valley fever
- Teschovirus encephalomyelitis



History of CMC-AH missions and Good Emergency Management Practice (GEMP) workshops

The demand for animal health services and the management of animal diseases (including emerging diseases and zoonoses) continues to evolve, and CMC-AH recognises its role in meeting the changing needs of stakeholders. Forces that drive these changes include, among others: the global demand for upstream interventions, a seamless One Health approach, effective incident coordination of information and resources, and preparations for the potential deliberate use of biological agents as weapons.

In this evolving global context, the CMC-AH decided to modernise. It developed a strategic action plan that would result in a more holistic and sustainable platform for global animal health emergency management. Building on the Centre's first ten years of success, and following the recommendations of the CMC-AH Steering Committee, the strategic action plan clearly details the path forward, and activities for the next five years.

## To reflect this future, the CMC-AH rebranded itself in February 2018 as the Emergency Management Centre for Animal Health (EMC-AH)

The new EMC-AH intends to broaden its assistance to Member Countries to include activities at all stages of emergency management: i.e. preparedness, prevention (and mitigation), detection, response and recovery. The EMC-AH also intends to enhance its collaborative links to work more effectively and efficiently with other mechanisms, networks and tools of the OIE, WHO and other multisectoral partners. However, capacity-building for emergency preparedness and rapid response to emergencies will remain its core functions.

The world must be prepared to prevent and mitigate, detect, respond swiftly to and recover from high-impact animal diseases and zoonotic emergencies, whether naturally occurring or accidentally or deliberately induced, if

we are to protect livelihoods and ensure food security in a sustainable manner. The EMC-AH is at the forefront of this challenge, and remains committed to enhancing country, regional and international resilience in animal health and zoonotic disease emergency management.

<http://dx.doi.org/10.20506/bull.2018.1.2773>

## AROUND THE WORLD

### ▶ SUCCESS STORIES

## Cooperation among the Rinderpest Holding Facilities Network

### AUTHORS

[Mariana Marrana](#)

Chargée de Mission, Rinderpest, Programmes Department, World Organisation for Animal Health (OIE)



*At the International Advocacy Meeting on Maintaining Global Freedom from Rinderpest, held from 13 to 16 June 2017 in Kathmandu, Nepal, the five FAO/OIE-designated rinderpest holding facilities (RHF) formally agreed to establish the RHF Network.*

The RHF Network defined its priorities for 2017-2018 as follows:

- to reduce the remaining stocks of rinderpest-virus-containing materials (RVCs) within the Network's own facilities
- to exchange expertise, technologies and information
- to collaborate on and develop diagnostic tools, and
- to contribute to preparedness and response activities.

This project is a successful example of cooperation in strengthening the management of rinderpest-virus-containing materials

Within the scope of these key items, the Pirbright Institute (United Kingdom) and the African Union Pan African Veterinary Vaccine Centre (PANVAC), in Ethiopia, are currently undertaking a twinning project to enhance biosafety and biosecurity in PANVAC's Biosafety Level 3 facility. The considerable expertise and experience of the Pirbright

Institute – also an OIE Reference Laboratory for rinderpest and peste des petits ruminants (PPR) – will be invaluable in supporting PANVAC to improve its operational procedures, in accord with the relevant international standards. A comprehensive and rigorous biosafety programme, as well as quality assurance training for all relevant staff, is currently under way and will further support the implementation of PANVAC’s RHF mandate.

This project is a successful example of cooperation in strengthening the management of RVCMS, thereby reducing biological threats, and was made possible by the generous contribution of Global Affairs Canada.

<http://dx.doi.org/10.20506/bull.2018.1.2774>

## AROUND THE WORLD

### ▶ SUCCESS STORIES

## The rinderpest virus tracking system

### AUTHORS

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*After the declaration of the global eradication of rinderpest in 2011, the World Assembly of OIE Delegates asked that FAO and the OIE establish and maintain a single global inventory of all existing rinderpest-virus-containing materials (RVCs), including vaccine stocks, and the facilities holding such stocks, as well as any movement of RVCs [1].*

### OIE annual survey 2013 to 2016

Since 2013, the OIE has conducted an annual survey on RVCs among its Members, to track efforts to sequester or destroy rinderpest virus held in laboratories, pharmaceutical companies, research institutes and universities. Moreover, since the designation of the five rinderpest holding facilities (RHF) in 2015, these facilities also report annually to FAO and the OIE on their activities, inventories, approved research projects, etc.

Even though reporting has been consistently carried out each year, there is no actual established mechanism to store these data, facilitate their processing and allow for real-time updates.

| The rinderpest virus-tracking-system project began in June 2017

## Moving forward

In that regard, and as a result of generous funding from the Defense Threat Reduction Agency (USA), the OIE released a call for tender to find a suitable IT partner who could develop a Web-based system for RHF's to report on changes in their inventory in real time, share information among facilities, process data and facilitate the management of such information. At the same time, the successful candidate (the Centre for Environment Fisheries and Aquaculture Science, United Kingdom) will modernise the Electronic Rinderpest Reporting System. This system was originally developed in-house by the OIE and used by Members to submit their annual report on RVCMS.

The rinderpest virus-tracking-system project began in June 2017 and it is hoped that it will be implemented by April 2018. If all goes well, OIE Members will benefit from it in the next reporting season.

<http://dx.doi.org/10.20506/bull.2018.1.2775>

### REFERENCES

1. World Organisation for Animal Health (OIE) (2011).- Resolution No. 18. Declaration of global eradication of rinderpest and implementation of follow-up measures to maintain world freedom from rinderpest. *In Resolutions adopted by the World Assembly of Delegates of the OIE during its 79th General Session, 22-27 May 2011. Doc. 79 GS/FR.*

## AROUND THE WORLD

### THEMATIC EVENTS

## The 2nd OIE Global Conference on Biological Threat Reduction, Ottawa, 2017

### AUTHORS

Christine Uhlenhaut

Chargée de Mission for Biological Threat Reduction, Programmes Department, World Organisation for Animal Health (OIE)



*The OIE Global Conference on Biological Threat Reduction, held in Ottawa, Canada, from 31 October to 2 November 2017, hosted professionals from relevant international organisations, as well as official National Delegates of OIE Member Countries, leading scientific experts, and donors and stakeholders from animal production and trade, animal health and welfare, public health, law enforcement and security communities from 70 countries.*

### | Enhancing health and security for all

The Conference motto - *'Enhancing health and security for all'* - set the stage for the main themes:

- a) Current developments in non-proliferation instruments and global security initiatives
- b) Global conversations on the use of technologies
- c) Assessing systems and investing in collaborations to foster preparedness
- d) The future of biological threat reduction.

The Conference was interactive, and - instead of a keynote presentation - began with a keynote panel discussion.

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Four high-level representatives: Monique Éloit, Director General of the OIE; Patrick Stevens, Director of Counter-Terrorism at INTERPOL; Lance Brooks, Acting Director, Cooperative Threat Reduction, Defense Threat Reduction Agency, USA; and Theresa Tam, Chief Public Health Officer of Canada; answered questions and discussed the roles and responsibilities of their various agencies in the context of biological threat reduction ([video](#)). Participants submitted questions electronically and each session ended with a facilitated discussion involving all speakers. This more interactive approach was very successful, as indicated by the positive feedback from the participants. Although there was not enough time to address all the questions submitted during the panel discussions, the OIE is now aware of these points, and will use them as food for thought in the coming months.

More than 300 participants discussed biological threat reduction and adopted 12 recommendations on principal areas. These recommendations can be found on [the Conference website](#) and will become the focus to continue work with our partners to enhance health and security.

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Most of the presentations, as well as photos and videos, can be found at:  
[www.oie.int/eng/BIOTHREAT2017/introduction.htm](http://www.oie.int/eng/BIOTHREAT2017/introduction.htm)

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This Conference took place with the generous support of the Government of Canada; the Government of the United Kingdom of Great Britain and Northern Ireland; the European Union; and the Defense Threat Reduction Agency of the United States of America.

## RESOURCES

### THEMATIC EVENTS

## Recommendations of the First OIE Global Conference on Biological Threat Reduction

Paris, France, 30 June – 2 July 2015



### The OIE hosted the first Global Conference on Biological Threat Reduction in Paris, 30 June - 2 July 2015.

For the purposes of the Conference, 'Biological Threats' or 'Biothreats' are threats that result from or are exacerbated by infectious diseases of animals (including zoonoses) which may arise from natural or manmade disasters, laboratory accidents or from the deliberate manipulation or release of pathogens.

The Conference, which was held in collaboration with the World Health Organization (WHO), brought together world leading scientists, educators, and key decision makers from international organisations and national governments. The participants who represented the public health, animal health, ecosystem health, and security sectors came from more than 80 countries.

[Read the recommendations of the conference...](#)

## RESOURCES

### ▶ THEMATIC EVENTS

## Recommendations of the Second OIE Global Conference on Biological Threat Reduction

Ottawa, Canada, 31 October - 2 November 2017



**Thanks to the generous support of the Government of Canada; the Government of the United Kingdom; the European Union; and the Defense Threat Reduction Agency of the United States of America, the OIE organised the 2nd Global Conference on Biological Threat Reduction in Ottawa, Canada on 31 October - 2 November 2017.**

The Conference hosted over 300 participants from 70 countries who were professionals from relevant international organisations, official National Delegates of OIE Member Countries, leading scientific experts, donors, and stakeholders from animal production and trade, animal health and welfare, public health, law enforcement and security communities.

[Read the recommendations of the conference...](#)

## RESOURCES

### ▶ OIE PUBLICATIONS

## Guidelines for investigation of suspicious biological events

(Guidelines for National Veterinary Services)



To address the lack of standards for biothreat and disaster response in many countries, an OIE ad hoc group has drafted guidelines on biothreat reduction...

[More information...](#)

[Download the \*Guidelines for investigation of suspicious biological events\*](#)

## RESOURCES

### ▶ THEMATIC EVENTS

## Proceedings of the first OIE Global Conference on Biological Threat Reduction

Paris, France, 30 June - 2 July 2015



29.7 × 21 cm

186 pp.

ISBN 978-92-95108-49-8

Price: EUR **30**

The first OIE Global Conference on Biological Threat Reduction was convened in 2015 in close collaboration with WHO, to put biological threat reduction on the agenda of Veterinary Services in the OIE Member Countries; strengthen links between the health, animal health and the security sector; promote international human and animal health frameworks as a key to reducing biological threats; and develop a road map focused on enhancing and coordinating existing mechanisms for outreach and the strengthening of health systems.

These proceedings include presentations from 34 speakers, including representatives of international organisations, national governments, policy and decision makers, OIE reference centers and donors as well as experts on sciences and economic applied studies.

[Order here...](#)

## RESOURCES

### ► OIE PUBLICATIONS

### Biological threat reduction



test

***Scientific and Technical Review***, Vol. **36** (2)

*Coordinator and Editor: Tammy Beckham*

Trilingual publication

August 2017

29.7 × 21 cm

348 pages

ISBN 978-92-95108-31-8

Price: EUR **70**

Animal diseases, including zoonoses, have the potential to negatively impact economies, the environment, society, and public health. It is currently thought that over 60% of human diseases and over 80% of agents that can be used for bio-terrorism are of animal origin. The emergence and spread of animal diseases, including zoonoses, is at an all-time high. This increase in disease emergence and spread is thought to be the result of an increase in intensive farming, global travel, human pressure on ecosystems and social unrest.

This issue of the *Scientific and Technical Review* reviews the use of animal pathogens and zoonotic agents as bioweapons. More specifically, it examines their use throughout history, explores current disease trends and threats and evaluates the use of animals (terrestrial and aquatic) as sentinels for early detection of outbreaks affecting animals and/or humans, whether the outbreaks be of natural, accidental or deliberate origin.

In addition, it looks at the potential impacts of animal pathogens, including zoonotic agents, on economies, social unrest, food security, and public health. It reviews current frameworks for an international response to a biological

event and explores current United Nations mechanisms for response to an alleged use of biological agents. This volume also explores technological advances for early detection, surveillance, and response to a disease event. It concludes by discussing systems for strengthening global biosecurity and resilience and considering methods of ensuring the sustainability of these systems.

[Order here](#)

## RESOURCES

### ► OIE PUBLICATIONS

## Biological disasters of animal origin

The role and preparedness of veterinary and public health services



### **Scientific and Technical Review, Vol. 25 (1)**

**Coordinator: M. Hugh-Jones**

#### **Trilingual publication**

2006

29.7 x 21 cm

464 pages

ISBN 92-9044-661-7

Price: EUR **50**

It is the efficiency with which we plan for and confront traditional and emerging disease outbreaks that will predict our ability and confidence in tackling intentional outbreaks if, when, and where they occur. This means that planning and training must depend on valid models. To prevent public panic, communications must be transparent. Laboratory support must be able to respond to surge demands as well as forensic investigations. These and other crucial dimensions such as compliance of Veterinary Services with OIE standards, early detection and rapid response to outbreaks are covered by recognised experts in this issue of the [Scientific and Technical Review](#).

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## RESOURCES

### ▶ OIE PUBLICATIONS

## OIE guidance on biosafety and biosecurity in veterinary laboratories and animal facilities



### Biosafety and biosecurity: Standard for managing biological risk in the veterinary laboratory and animal facilities

Chapter 1.1.4. of the *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals*. Version adopted in May 2015.

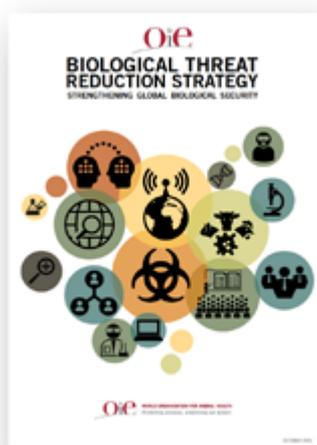
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## RESOURCES

### ► OIE PUBLICATIONS

## OIE biological threat reduction strategy

Strengthening global biological security



In meeting its mandate to improve animal health, veterinary public health, and animal welfare worldwide, the OIE takes the threat posed by accidental and deliberate release of animal pathogens very seriously. The OIE's strategy for bio-threat reduction focuses on strengthening, enhancing, and developing cross-links between existing health systems.

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## RESOURCES

### ► OIE PUBLICATIONS

## Emerging zoonoses and pathogen of public health concern



### ***Scientific and Technical Review, Vol. 23 (2)***

This issue of the *Scientific and Technical Review* describes and explains a number of important emerging zoonoses and the factors that have both created their emergence and challenged national Veterinary Services, and the OIE itself, to become more engaged and responsive to these important contemporary problems. It also highlights the dangers of the constant adaptability of pathogens to survive and infect populations of animals and people and rapidly move between these host populations.

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## RESOURCES

### ▶ EXTERNAL PUBLICATIONS

#### United Nations Secretary-General's Mechanism for Investigation of Alleged Use of Chemical and Biological Weapons



The United Nations Secretary-General's Mechanism to carry out prompt investigations in response to allegations brought to his attention concerning the possible use of chemical and bacteriological (biological) and toxin weapons was developed in the late 1980s. Triggered by a request from any United Nations Member State, the Secretary-General is authorized to launch an investigation including dispatching a fact-finding team to the site(s) of the alleged incident(s) and to report to all United Nations Member States. This is to ascertain in an objective and scientific manner facts of alleged violations of the 1925 Geneva Protocol, which bans the use of chemical and biological weapons, or other relevant rules of customary international law.

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## RESOURCES

### ▶ EXTERNAL PUBLICATIONS

## Global Partnership Against the Spread of Weapons and Materials of Mass Destruction



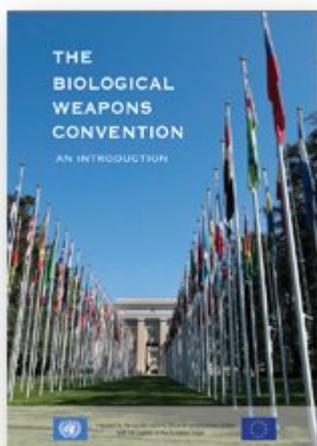
The G8 launched the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction at the 28th G8 Summit held in Kananaskis, Canada, in 2002. The Partnership now encompasses 31 members.

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## RESOURCES

### ▶ EXTERNAL PUBLICATIONS

#### The Biological Weapons Convention. An introduction



The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction was the first multilateral disarmament treaty banning the production of an entire category of weapons.

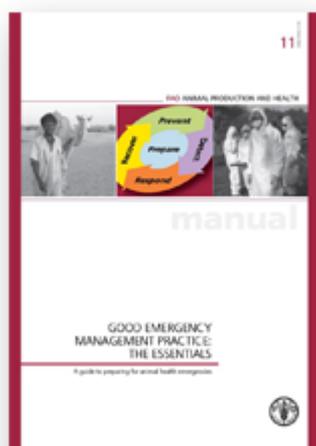
The full text of the Convention can be found in the Annex of the document.

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## RESOURCES

### ▶ EXTERNAL PUBLICATIONS

## Good Emergency Management Practice: The Essentials



### **A guide to preparing for animal health emergencies**

*Edited by Nick Honhold, Ian Douglas, William Geering, Arnon Shimshoni & Juan Lubroth.*

FAO Animal Production and Health Manual No. 11. Rome, 2011.

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## RESOURCES

### ▶ EXTERNAL PUBLICATIONS

#### Security implications of synthetic biology and nanobiotechnology

A risk and response assessment of advances in biotechnology



United Nations Interregional Crime and Justice Research Institute (UNICRI), 2012.

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## RESOURCES

### ▶ EXTERNAL PUBLICATIONS

1540 Committee. United Nations Security Council Committee established pursuant to resolution 1540 (2004)



In 2004, the United Nations Security Council adopted resolution 1540, which obliges States, inter alia, to refrain from supporting by any means non-State actors from developing, acquiring, manufacturing, possessing, transporting, transferring or using nuclear, chemical or biological weapons and their means of delivery.

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## RESOURCES

### ▶ EXTERNAL PUBLICATIONS

#### Guide to participating in the confidence-building measures of the Biological Weapons Convention



In 1986, Biological Weapons Convention States Parties agreed to introduce 'Confidence-Building Measures' in order to prevent or reduce the occurrence of ambiguities, doubts and suspicions and in order to improve international co-operation in the field of peaceful biological activities. This guide has been prepared by UNODA with the support of the European Union.

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## RESOURCES

### ▶ THEMATIC EVENTS

2nd OIE Global Conference on Biological Threat Reduction (Ottawa, Canada, 31 October – 2 November 2017)

Enhancing health and security for all



[Keynote panel session – Global perspectives on health and security...](#)

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