



OIE WILDLIFE HEALTH FRAMEWORK 'PROTECTING WILDLIFE HEALTH TO ACHIEVE ONE HEALTH'

PURPOSE OF THIS PAPER

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This paper describes how the OIE can reinforce One Health strategies through a Wildlife Health Framework. This responds to a global need to better manage risks from emerging diseases at the human-animal-ecosystems interface, whilst protecting wildlife.

The approach described in this framework is aligned with the OIE's mandate as the leading international organisation on animal health. It recognises that animal (wild and domestic) health, balanced ecosystems, and biodiversity contribute to achieving One Health.

Concrete actions to achieve an overarching goal are described in the document. These actions need to be developed into a structured work programme describing management, the resources required, partnerships, and expected results. Implementation would be incremental and build on the OIE's existing tools, networks, and systems. In the short term there would be a focus on activities where OIE is strongest, has experience, and can add most immediate value.

There are two core objectives - to manage the risk of disease emergence at the human-animal-ecosystems

interface and to protect wildlife health. In the context of disease emergence, wildlife is often seen as a threat, but it is a vital resource, providing essential ecosystems services and a source of biodiversity. Wildlife is also at risk from disease emergence. Managing the risk of disease emergence and protecting wildlife health should be complementary. The two objectives should not be seen as mutually exclusive.

Stakeholders buy-in is essential and a broad range of attitudes towards wildlife need to be considered when working towards realistic long-term goals.

The framework does not position the OIE as the leading international authority on conservation and it does not describe a goal which can be achieved by the OIE alone; collective and coordinated multilateral action is required.

Acknowledging that the landscape is dynamic and rapidly evolving, flexibility is important. This paper is a starting point towards a longer-term strategy.

INTRODUCTION

The OIE has nearly 100 years of experience working at the human-animal-ecosystems interface to reduce disease threats. The organisation is unique in having the mandate to 'improve animal health worldwide' and in representing the interests of National Veterinary Services in 182 Member Countries.

There is no substitute for experience. Over the past century the OIE has addressed its goals in a world of constant change. It has grown through a cycle of learning and continual improvement. No task has been too great. Rinderpest, a devastating disease of both wildlife and livestock, was the initial trigger for establishing the OIE in 1924. The declaration of global freedom from rinderpest in 2011 demonstrated the OIE's steadfast commitment to, and realisation of, ambitious long-term goals. Independent from the United Nations, the OIE remains flexible and rapidly adaptable to change.

A greater frequency of emerging disease events (which present pandemic risks) accelerated biodiversity loss and understanding that disease emergence is driven by the nature of interactions between humans, animals, and the environment highlights an urgent need to reinforce One Health strategies.

The concept of One Health is integral to the OIE's work, supported by cross cutting initiatives on pandemic preparedness and anti-microbial resistance, and initiatives to tackle zoonotic diseases such as rabies, tuberculosis, influenza, and brucellosis. It is addressed through partnerships, including the Tripartite (WHO, FAO and the OIE) and more recently the Tripartite+ (which will also include UNEP). **In response to global trends in disease emergence and biodiversity loss there is recognition of an urgent need to strengthen the wildlife component of One Health.**

The foundations for building an OIE Wildlife Health Framework exist. Wildlife health and its relationship with One Health has been overseen by the OIE Wildlife Working Group, which was launched 25 years ago. At regional level, the OIE is supported by a network of OIE Collaborating Centers specializing in wildlife and One Health issues; at national level, the OIE is supported by a global network of OIE National Focal Points for wildlife; and international transparency of disease events in wildlife is supported by WAHIS-wild.

The OIE collaborates on wildlife health issues with a number of partners including IUCN, Secretariat of the CBD, and CITES. As the international standard setting

body on trade in animals and animal products, the OIE is well positioned, to develop guidance and standards to manage disease risks from the legal trade in wildlife and wildlife products, while CITES is responsible for the regulation of trade in endangered species. On illegal activities, the OIE is strengthening the relationship between Veterinary Services and law enforcement authorities through its partnership with INTERPOL.

National Veterinary Services interact with wildlife to varying degrees in different parts of the world, often in partnership with other government and non-governmental actors. The framework described in this paper aims to promote, assert, and support the central role that the OIE has at the global level in setting One Health directions, and that Veterinary Services have in implementing One Health approaches at the national level.

The Wildlife Health Framework is consistent with the mandate of the OIE and aligns closely with objectives of its 6th and 7th (draft) Strategic plans, including collaboration with multisectoral partners, responding to member needs, based on science, and strengthening data governance.

To reach the aspirational goal of 'protecting wildlife health to achieve One Health' will require the concerted effort of numerous different actors (international organisations, NGOs, governments, the private sector

entities, and other communities across several sectors) towards common goals. The OIE will need to enhance its relationship with existing partners and identify new partners, whilst articulating its role and value. Since various actors will have different interests, advocacy, partnership, and mutual understanding will be needed to ensure coordinated multisectoral action at the human-animal-ecosystems interface.

It will be important to highlight the opportunities provided by a Wildlife Health Framework (which include benefits to public health, and animal health and welfare) to different stakeholders. For the primary stakeholders of Veterinary Services benefits include reduced risks to livestock from emerging diseases, and reduced disruption to supply chains and trade by reducing the risk of future pandemics.

The development of this OIE Wildlife Health Framework has been a collaborative effort involving contributions from OIE Staff in HQ and the Regions, the OIE Wildlife Working Group, international partners, OIE Delegates and National Focal Points for Wildlife, and integrated the views and expectations of OIE members (collected through a survey and two global webinars attended by over 350 stakeholders). This version is the final version, taking into consideration additional comments from the OIE Partners and final comments from the OIE Wildlife Working Group.

BACKGROUND

Wildlife is essential to maintain ecosystems services. For example, animals such as bats, often seen as deadly virus carriers, are in fact keystone species of many ecosystems worldwide. Seed dispersors, pollinators and insect population controllers, the more than 1,400 species of bats living on the planet play a vital role in maintaining healthy and functioning ecosystems that greatly benefit humans. The disappearance of some of these species due to deadly pathogens or other factors (e.g. human activity and natural events) would have important ecological, socio-economic, and global health impacts. Population sizes of wild vertebrate species - mammals, birds, reptiles, amphibians, and fish - have declined by 52 percent over the last 40 years¹. A recent report showed that one million wild animal and plant species are now threatened with extinction, many within decades, more than ever before in human history². Therefore, wildlife health deserves investment and attention.

Humans and animals share the same ecosystems and therefore, human health, animal health and environmental health are interconnected. Pathogens

and diseases have evolved with human and animal populations.

The agricultural revolution was an important milestone for both humans, animals and pathogens. It was marked for humans by the establishment of sedentary and growing communities, resulting in increased population density. Animals became domesticated and lived closely with humans and followed them. These factors gave pathogens a spectacular opportunity to evolve and spread. For millenia, pathogens jumped the species barrier from humans to animals and vice versa. Increased interactions between humans, wildlife and domestic animals (as a result of population growth, human activities and unsustainable consumption models) has put unprecedented pressure on the mechanisms for disease emergence. In the past 20 years, most (60.3%) emerging infectious diseases affecting humans had an animal origin and the majority of these (71.8%) came from wildlife. Emerging infectious diseases also affect domestic animals and wildlife.

Although the broad drivers of disease emergence are generally accepted the life cycles and dynamics of many

¹ [Living Planet Report. WWF. 2014](#)

² [IPBES Global Assessment Report on Biodiversity and Ecosystem Services Report. 2019.](#)

emerging pathogens are not yet fully understood. Therefore, continuous scientific, socio-economic and anthropological studies will need to accompany the development of risk management and mitigation strategies. Surveillance systems for pathogens in wildlife are of foundational importance in understanding, preventing and controlling spill-over of pathogens at the human-livestock-wildlife interface.

Unregulated wildlife trade and exploitation has been identified as a risk factor for disease emergence and spread. Wildlife trade is broad, highly complex and provides opportunities whilst also creating risks. Wildlife species are an important source of protein and income for vulnerable local and rural communities. Yet the unsustainable and unsafe exploitation of wildlife may pose threats to animal health and welfare whilst contributing to the impoverishment of biodiversity and species declines, and the depletion of natural resources worldwide, resulting in serious public health problems.

Veterinary Services are the national Competent Authority responsible for ensuring animal health and welfare and are often at the forefront of zoonotic disease management. They can play a central role in reducing the risk of disease emergence and spillover at the human-animal-ecosystem interface. Veterinary Services can promote early detection of diseases in wildlife through solid surveillance systems, safe trade of wildlife, and the maintenance of wildlife health to support healthy ecosystems. However, many Veterinary Services around the world currently lack the capacity and resources, as well as the appropriate regulatory and One Health, multisectoral collaboration frameworks to fulfil their potential in this area.

The World Organisation for Animal Health has a unique role to play in addressing global animal health threats by working with its 182 Members, represented by National Veterinary Services, to set ambitious goals and to work towards them by sharing knowledge, setting international standards, advocating, mobilising resources and building capacity, working with partners, and by engaging its worldwide network of expertise.

International Guidelines and Standards provide a global framework to support the establishment of robust wildlife health surveillance and management systems at regional, national and local level and to guide Veterinary

Services and their partners. These systems support the implementation of best practices to reduce disease risks in the context of wildlife trade and the supply chain.

A Wildlife Health Management Framework is needed to: (i) build knowledge and awareness amongst National Veterinary Services about their role in better protecting wildlife health and (ii) strengthen OIE Members' capacity for early detection of pathogens in wildlife, wildlife surveillance and management systems, information management, risk assessment, and implementation of mitigation measures. This will support the creation of an enabling environment and foster sustainable partnerships between Veterinary Services, wildlife management authorities and other relevant partners in public health, wildlife conservation,

What factors are increasing zoonosis emergence?
(Diseases transmitted from animals to humans)

The infographic features five circular icons with target symbols, each representing a factor: 1. A person cutting a tree labeled 'Deforestation and other land use changes'. 2. A person with a target on their chest next to a cage with a target on it, labeled 'Illegal and poorly regulated wildlife trade'. 3. A person with a target on their chest next to a field of corn and a flock of chickens, labeled 'Intensified agriculture and livestock production'. 4. A circular icon of a bacterium with arrows labeled 'antibiotics' pointing towards it, labeled 'Antimicrobial resistance'. 5. A dead tree with a target on its trunk, labeled 'Climate change'. The source is cited as 'Source: UNEP Frontiers 2016 Report'.

#COVID19

UN environment programme

scientific academic bodies and the environment sector, among others.

The costs of investing in appropriate surveillance systems and networks and in wildlife health management are not negligible, but the costs and risks of not doing so are much greater both from a public health and from a conservation standpoints. Therefore, coordinated global action is needed now, more than ever, to ensure that wildlife health is actually fully integrated in the One Health discussions along with environment sector and is adequately monitored and managed with the same diligence as domestic animal health. This must be built upon previous successes and lessons learned from past decades, and openly address and learn from issues and challenges.

The overall goal of the framework is to ‘protect wildlife health worldwide to achieve One Health’.

This will reduce the negative effects of diseases on public health, livestock health, wildlife populations, and animal welfare, whilst preserving the ecosystems services provided by wildlife.

This goal is supported by two objectives:

1. The first is focused on One Health, **aiming to improve the ability of OIE Members to manage the risk of pathogen emergence in wildlife and transmission at the human-animal-ecosystem interface, whilst taking into account the protection of wildlife.**

This aims to build capacity to understand, detect, and manage disease emergence at the human animal interface, whilst recognizing the value provided by wildlife in supporting balanced ecosystems. It focuses on disease risks which arise from the interaction between humans, animals (wild and domestic) and the environment.

2. The second objective to support **OIE Members to improve surveillance systems, early detection, notification, and management of wildlife diseases.** This objective is focussed on protecting wildlife health through disease monitoring, early detection

of disease threats, and transforming global animal disease data (reported to the OIE by its Member Countries) into something which can be used to better manage wildlife health. The determinants of wildlife health do go beyond infectious disease events, but wildlife diseases may threaten wildlife health and biodiversity and they may be a signal of unhealthy ecosystems. Whilst OIE is focussed on disease it will need to work with partners to better integrate wildlife disease into overall wildlife and ecosystems health.

To achieve these objectives a coordinated set of actions will aim to: 1. Foster multisectoral collaboration to strengthen wildlife disease surveillance and health management; 2. Create an enabling environment to promote the role of veterinary services in wildlife health management; 3. Raise awareness of risk pathways and best practices in wildlife health and One Health management.

A theory of change was developed to describe how the OIE could better integrate wildlife health into One Health strategies by drawing on and enhancing its existing tools, networks, and partnerships. The theory of change and a detailed list of work packages can be found in annexes 1 and 2.

OIE MANDATE

The World Organisation for Animal Health aims to improve animal health worldwide

OVERALL GOAL OF WILDLIFE HEALTH FRAMEWORK

Protect wildlife health worldwide to achieve One Health

OBJECTIVE 1

OIE Members improve their ability to manage the risk of pathogen emergence in wildlife and transmission at the human-animal-ecosystem interface, whilst taking into account the protection of wildlife

OBJECTIVE 2

OIE Members improve surveillance systems, early detection, notification and management of wildlife diseases

OUTCOME 1

One Health, multisectoral collaboration and capacity for wildlife health management, monitoring and surveillance systems Strengthened

OUTCOME 2

A political, policy and scientific environment that allows Veterinary Services to implement effective wildlife health monitoring and management promoted

OUTCOME 3

Awareness and knowledge of risks pathways and best practices in wildlife health and One Health management increased



Output 1
Multisectoral coordination and collaboration promoted



Output 2
Capacity in wildlife health management strengthened



Output 3
Quality data collection, reporting, analysis and use improved



Output 4
Guidelines, standards, risk reduction strategies updated & developed



Output 5
Scientific knowledge developed and disseminated



Output 6
Awareness and advocacy tools produced and disseminated



WORKING DEFINITIONS TO SUPPORT THIS FRAMEWORK (N.B. SOME OF THESE ARE DIRECTLY DRAWN FROM EXISTING INTERNATIONAL STANDARDS; OTHERS WILL BE REFINED AS A RESULT OF ACTIVITIES DESCRIBED IN THIS DOCUMENT)

- **COMPETENT AUTHORITY** means the Veterinary Authority or other Governmental Authority of a Member Country having the responsibility and competence for ensuring or supervising the implementation of animal health and welfare measures, international veterinary certification and other standards and recommendations in the Terrestrial Code and in the OIE Aquatic Animal Health Code in the whole territory [OIE *Terrestrial Animal Health Code* (2019 edition)].
- **ECOSYSTEM SERVICES** are the direct and indirect contributions of ecosystems to human well-being. They support directly or indirectly our survival and quality of life. Ecosystem services can be categorized in four main types: Provisioning, Regulating services, Habitat, and Cultural services. [TEEB]
- **EMERGING DISEASE** means a new occurrence in an animal of a disease, infection or infestation, causing a significant impact on animal or public health resulting from: (1) a change of a known pathogenic agent or its spread to a new geographic area or species; or (2) a previously unrecognised pathogenic agent or disease diagnosed for the first time [OIE *Terrestrial Animal Health Code* (2019 edition)].
- **OIE INTERNATIONAL STANDARDS** refer to two Codes (OIE Terrestrial Animal Health Code and OIE Aquatic animal code) and 2 Manuals (OIE Manual of Diagnostic Tests for Aquatic Animals and Manual of Diagnostic Tests and Vaccines for Terrestrial Animals).
- **OIE OBSERVATORY** is a mechanism for monitoring the implementation of OIE International Standards and to ensure that they are relevant and fit for purpose.
- **OIE WORKING GROUP ON WILDLIFE** founded in 1994, informs and advises the OIE on all health problems relating to wild animals, whether in the wild or in captivity. It reports to the OIE Director General who transmit the report, or relevant parts of it, to the appropriate Specialist Commissions of OIE. It has prepared recommendations and oversees numerous scientific publications on the surveillance and control of the most important specific wildlife diseases. The Working Group comprises 7 world-leading scientific experts in their subject areas.
- **SURVEILLANCE** means the systematic ongoing collection, collation, and analysis of information related to animal health and the timely dissemination of information so that action can be taken [OIE *Terrestrial Animal Health Code* (2019 edition)].
- **SURVEILLANCE SYSTEM** means the use of one or more surveillance components to generate information on the health status of animal populations [OIE *Terrestrial Animal Health Code* (2019 edition)].
- **REFERENCE CENTRE** is designated either as:
 - OIE Reference Laboratory - the principal mandate of which is to function as a world reference centre of expertise on designated pathogens or diseases; or
 - OIE Collaborating Centre – the principal mandate of which is to function as a world center of research, expertise, standardization of techniques and dissemination of knowledge on specialty.
- **VETERINARY SERVICES** mean the governmental and non-governmental organisations that implement animal health and welfare measures and other standards and recommendations in the Terrestrial Code and the OIE Aquatic Animal Health Code in the territory. The Veterinary Services are under the overall control and direction of the Veterinary Authority. Private sector organisations, veterinarians, veterinary paraprofessionals or aquatic animal health professionals are normally accredited or approved by the Veterinary Authority to deliver the delegated functions [OIE *Terrestrial Animal Health Code* (2019 edition)].
- **VETERINARY AUTHORITY** means the Governmental Authority of a Member Country, comprising veterinarians, other professionals, and paraprofessionals, having the responsibility and competence for ensuring or supervising the implementation of animal health and welfare measures, international veterinary certification and other standards and recommendations in the Terrestrial Code in the whole territory (OIE *Terrestrial Animal Health Code* (2019 edition)).
- **WILDLIFE** means feral animals, captive wild animals, and wild animals. **Feral animal** is an animal of a domesticated species that now lives without direct human supervision or control. **Captive wild animal** is an animal that has a phenotype not significantly affected by human selection but that is captive or otherwise lives under direct human supervision or control, including zoo animals and pets. **Wild animal** is an animal that has a phenotype unaffected by human selection and lives independent of direct human supervision or control [OIE *Terrestrial Animal Health Code* (2019 edition)].

- **WILDLIFE HEALTH** is a multidisciplinary concept and is concerned with multiple stressors that affect wildlife. Wildlife health can be applied to individuals, populations, and ecosystems, but its most important defining characteristics are whether a population can respond appropriately to stresses and sustain itself. (Definition coming from the following article “Promoting Wildlife Health or Fighting Wildlife Disease: Insights from history, philosophy, and science).
- **WILDLIFE HEALTH MANAGEMENT** means a system designed to optimise the physical and behavioural health and welfare of wildlife, and the ecosystems on which they depend. It includes the prevention, treatment and control of diseases and conditions affecting the individual, population, or ecological community, including the recording of illness, injuries, mortalities via targeted surveillance, sustainable wildlife management and interventions to promote wildlife health where appropriate. [adapted from OIE definition of animal health management [OIE *Terrestrial Animal Health Code* (2019 edition)].
- **WILDLIFE TRADE AND USE** means commercial and non-commercial trade in wildlife and plants – live or dead – and any products that are derived from them, and their use and consumption by consumers such as working animals, bush meat, in collections, transportation, relocation, translocation, tourism, capture, research, handling, farming, marketing, and slaughter.
- **WILDLIFE VALUE CHAIN** is composed of groups of people linked by an activity to supply a specific commodity. It incorporates the whole range of activities (including value adding processes) and relations (rules for interactions/governance) associated with production, harvest, exchange, transport and distribution of wildlife, wildlife products and by-products. [a value chain approach to animal diseases risk management – FAO, 2011].
- **WILDLIFE SUPPLY CHAIN** is a connection of all the parties, resources, businesses, and activities involved in the marketing or distribution through which wildlife and wildlife by products reach the end user³.
- **ZOONOSIS** means an infectious disease caused by a pathogenic agent (an infectious agent, such as a bacterium, virus, parasite or prion) that spreads between animals and humans.

³ <https://keydifferences.com/difference-between-supply-chain-and-value-chain.html>

ACRONYMS

Acronym	Name
CBD	Convention on Biological Diversity
CCHF	Crimean Congo Haemorrhagic Fever
CITES	The Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPW	Collaborative Partnership for Wildlife
EBO-SURSY	Ebola Virus Surveillance Project
EBOV	Ebola Virus
EIOS	Epidemic Intelligence from Open Sources
EPT	Emerging Pandemic Threats programme
FAO	Food and Agriculture Organisation
HIV	Human Immunodeficiency Virus
ICFAW	International Coalition for Animal Welfare
IHR	International Health Regulations
IUCN	International Union for Conservation of Nature
MERS	Middle East respiratory syndrome
NBW	National Bridging Workshop
NFP	OIE National Focal Points
NGO	Non-Governmental Organisation
PVS	Performance of Veterinary Services
RVF	Rift Valley Fever
SARS	Severe Acute Respiratory Syndrome
UNEP	United Nation Environment Programme
VLSP	Veterinary Legislation Support Programme
WAHIS	World Animal Health Information System
WDA	Wildlife Disease Association
WHO	World Health Organisation

OVERALL GOAL

To protect wildlife health worldwide to achieve One Health

OBJECTIVE 1: OIE Members improve their ability to manage the risk of pathogen emergence and transmission at the human-animal-ecosystem interface, whilst taking into account the protection of wildlife

Outcomes	Outputs	Activities
<p>One Health, multisectoral collaboration and capacity for wildlife health management, monitoring and surveillance systems strengthened</p>	<p>Output 1 One Health, multisectoral coordination and collaboration promoted</p>	<ul style="list-style-type: none"> • Conduct analysis and needs assessment of stakeholders involved in wildlife health monitoring along the wildlife value/supply chain, and take stock of high risk interactions and best practices for safe wildlife trade and sustainable use of wildlife
		<ul style="list-style-type: none"> • Analyse gaps and strengths of current and relevant OIE Reference Centres to use and strengthen their impact by establishing a global and dynamic Reference Centre network to monitor and report on trends and alerts in wildlife health issues linked to wildlife trade and supply chain in coordination with the Working Group on Wildlife
		<ul style="list-style-type: none"> • Improve functionality of partnerships with organisations working on wildlife trade-related issues to become actively engaged in joint activities. Engage new key partners (e.g. law enforcement agencies, conservation, animal welfare and international development NGOs) in relevant collaborations on wildlife health issues linked to wildlife trade and supply chain at global and regional level.
		<ul style="list-style-type: none"> • Promote functional and complementary links between Veterinary Services and wildlife management authorities or other relevant stakeholders to become actively engaged in joint activities involving health management linked to wildlife trade and supply chain
		<ul style="list-style-type: none"> • Lead and coordinate within the Tripartite+ (WHO-FAO-OIE and UNEP) to develop strategies to strengthen best practices in safe wildlife trade and sustainable use of wildlife, including capture, transportation, relocation, translocation, breeding, farming, handling, usage (for food, medicine, labour), research, and risk management along the wildlife value/supply chains
		<ul style="list-style-type: none"> • Develop or improve specific mechanisms/tools, such as for legislation, regulation and simulation exercises, IHR-PVS National Bridging Workshops, to increase collaboration between Veterinary Services and wildlife management authorities or other relevant key stakeholders involved in wildlife health issues linked to wildlife trade and its supply chain (e.g. law enforcement)
		<ul style="list-style-type: none"> • Foster collaboration at regional level with selected partners (regional economic communities, regional health agencies etc.) to support the implementation of identified best practices in safe wildlife trade and sustainable use of wildlife
	<p>Output 2 Veterinary Services assessed and developed their capacities to establish wildlife surveillance systems and wildlife health management along</p>	<ul style="list-style-type: none"> • Review PVS critical competencies/other PVS Pathway components with a view to integrating competencies required for safe wildlife trade and sustainable use of wildlife. Collaborate with WHO to ensure JEE, PVS and One Health bridging tools remain coherent and complementary.
		<ul style="list-style-type: none"> • Through relevant PVS Pathway missions (Legislation), support Veterinary Services in integrating health (including animal welfare) management linked to wildlife trade and supply chain in their legislative and regulatory activities, while cooperating with other relevant stakeholders (human health, wildlife/environment, law enforcement, education and research sector...)

OBJECTIVE 1: OIE Members improve their ability to manage the risk of pathogen emergence and transmission at the human-animal-ecosystem interface, whilst taking into account the protection of wildlife

Outcomes	Outputs	Activities
	the wildlife trade and supply chain	<ul style="list-style-type: none"> • Review OIE Day One competencies curriculum, including both “OIE Guidelines on Veterinary Education Core Curriculum” & “OIE Recommendations on the Competencies of graduating veterinarians (‘Day 1 graduates’), to assure National Veterinary Services of quality” to address gaps in risk communication, risk assessment, risk pathways and mitigation strategies related to wildlife health management linked to wildlife trade and supply chain to ensure veterinary graduates have optimal core training • Conduct needs assessment of Veterinary Services’ training in risk communication, risk assessment, risk pathways and mitigation strategies, wildlife health management linked to wildlife trade and supply chain, through the review of PVS Pathway reports, targeted questionnaires and other relevant sources of data at national and regional level • Conduct a review of existing training material and of relevant training methodologies on selected topics using a One Health approach, participatory approaches, community engagement, adult learning methodologies, practical and simulation exercises • Develop e-learning modules/training manuals on selected topics in collaboration with OIE Reference Centres on education/wildlife, with education institutions partners targeting veterinary professionals, veterinary paraprofessionals, wildlife professionals, and the veterinary curriculum • Conduct multi-sectoral simulation exercises in risk communication, risk assessment, risk pathways and risk management for pathogen spill-over between wildlife, domestic animals and humans • Conduct multisectoral regional and national workshops on the wildlife value chain, health management health linked to wildlife trade and its supply chain using participative approaches and simulation exercises
	Output 3 Veterinary Services improved the collection, analysis, reporting and utilisation of good quality wildlife health data at national and global level	<ul style="list-style-type: none"> • Engage relevant OIE National Focal Points (NFP), along with relevant contact points from partner organisations’ to encourage multisectoral data sharing (wildlife health, wildlife trade trends...), streamlined communication and enhanced local collaboration • Support the streamlining and compatibility of multisectoral databases (e.g. EIOS, WAHIS, CITES, FAO) to improve overall data quality and completeness, avoid reporting duplication, increase access to quality data (disease notification, wildlife trade trends, species identification....) decrease reporting fatigue and enhance data analysis

OBJECTIVE 1: OIE Members improve their ability to manage the risk of pathogen emergence and transmission at the human-animal-ecosystem interface, whilst taking into account the protection of wildlife

Outcomes	Outputs	Activities
A political, policy and scientific environment to allow Veterinary Services to implement wildlife health monitoring and management promoted	Output 4 Guidelines, standards and risk reduction strategies integrating wildlife health issues are reviewed and/or developed	<ul style="list-style-type: none"> Review existing OIE Standards and practical guidelines relevant to wildlife health management along the wildlife value/supply chain, including trade, wild animal farming, relocation/transportation, slaughter, animal welfare, markets, and food safety among others to identify gaps and needs in coordination with other international standard setting and regulatory bodies
		<ul style="list-style-type: none"> According to the needs identified, and in collaboration with the OIE Working Group on Wildlife and the OIE Specialists Commissions, develop/update OIE Standards and guidelines on wildlife health management along the wildlife value/supply chain with the support of an OIE ad hoc group, composed of experts from multisectoral background (law enforcement, socio-economic, CITES, Veterinary Services, conservation, sustainable use of wildlife)
		<ul style="list-style-type: none"> Through relevant PVS Pathway missions (Legislation), support Veterinary Services in their regulatory activities related to wildlife health management along the wildlife value chain, including risk assessment and risk management (including traditional markets), capture and handling, wild animal farming, illegal and legal trade, slaughter and consumption, and animal welfare
		<ul style="list-style-type: none"> Disseminate new and updated OIE Standards and guidelines to Veterinary Services and other targeted stakeholders and support their implementation through e-learning modules and multisectoral regional workshops support
		<ul style="list-style-type: none"> Monitor the implementation of new guidelines and standards by using the OIE Observatory and collecting subsequent datasets linked to standards implementation, obstacles, and mitigation strategies
Awareness and knowledge of risks pathways and best practices in wildlife health management increased	Output 5 Veterinary Services contribute and have access to new scientific knowledge on wildlife surveillance, wildlife diseases and related risks	<ul style="list-style-type: none"> Comprehensively review the knowledge base and case studies on high risk behaviours and current practices in wildlife trade (legal/illegal) and use of wildlife (wildlife supply chains), using existing databases, lessons learned from past projects scientific literature, and the collective expertise available amongst Reference Centres on wildlife and/or trade, Veterinary Services, and the Working Group on Wildlife
		<ul style="list-style-type: none"> Through the creation of an OIE ad hoc group, including experts from Veterinary Services, further develop guidance on the application of risk assessment and risk management principles in wildlife health management along the value/supply chain including: traditional markets, capture, translocation/relocation, handling, transportation, animal welfare, farming, working animals, slaughter and consumption, and identify risk pathways and guidelines on the safety of scientific/research activities involving wildlife
		<ul style="list-style-type: none"> Through the support of scientific partners and Reference Centres on wildlife and/or trade, support scientific, socio-economic and anthropological studies⁴ on the drivers of high risk practices and potential alternatives around traditional markets, capture and handling, transportation, animal welfare, farming, trade, slaughter and consumption of wildlife, and taking into account animal welfare

⁴ https://www.oie.int/fileadmin/Home/eng/Our_scientific_expertise/docs/pdf/COV-19/1st_call_COVID19_21Feb.pdf and <https://www.who.int/blueprint/priority-diseases/key-action/Roadmap-version-FINAL-for-WEB.pdf?ua=1>

OBJECTIVE 1: OIE Members improve their ability to manage the risk of pathogen emergence and transmission at the human-animal-ecosystem interface, whilst taking into account the protection of wildlife

Outcomes	Outputs	Activities
	<p>Output 6</p> <p>Advocacy, awareness, and risk communication tools about wildlife health issues, integrating One Health concepts and behaviour change strategies, are disseminated</p>	<ul style="list-style-type: none"> • Develop a communication strategy to raise awareness about sanitary risks in the context of wildlife trade and supply chain and to lobby targeted stakeholders involved in the wildlife trade to implement best practices • Conduct a needs assessment, review existing materials and identify innovative communication tools at regional level for practical communication, that focus on behavioural change and prevention of spill-over events, targeting Veterinary Services, at-risk local communities, wildlife management stakeholders, agriculture producers, veterinary and para-veterinary schools/training institutions, One Health platforms and governments • Produce and/or adapt, at regional level, existing or new practical communication tools focusing on behaviour change and disease prevention, integrating the One Health concept to support best practices (and alternatives) in wildlife health management along the value chain (traditional markets, capture and handling, wild animal farming, relocation/translocation, animal welfare, slaughter, and consumption) • Support the Veterinary Services and its partners in the local adaptation of produced communication tools • Support the dissemination of communication tools focusing on behaviour change and prevention by Veterinary Services to targeted stakeholders through or in collaboration with relevant local or regional partners, as needed, to raise awareness amongst wildlife trade stakeholders and engage them in best practices (traditional markets, capture and handling, wild animal farming, relocation, slaughter, and consumption, as well as animal welfare) • Support Veterinary Services in lobbying and advocating to decision makers—including in government, regional economic communities, donors/investment partners, and One Health platforms—in securing sustainable funding and political support to implement best practices in wildlife health management along the wildlife value chain, including risk mitigation strategies

OBJECTIVE 2: OIE Members improve surveillance systems, early detection, notification and management of wildlife diseases

Outcomes	Outputs	Activities
One Health, multisectoral collaboration and capacity for wildlife health management, monitoring and surveillance systems Strengthened	Output 1 One Health, multisectoral coordination and collaboration promoted	<ul style="list-style-type: none"> • Conduct analysis and needs assessment of stakeholders involved in wildlife surveillance systems, at regional and national level
		<ul style="list-style-type: none"> • Analyse gaps and strengths of current OIE Reference Centres which have involvement in activities related to emerging zoonoses and wildlife surveillance systems and strengthen their impact by establishing a global and dynamic Reference Centre network to monitor, analyse, and report information about trends and alerts in emerging diseases, wildlife diseases, and pathogens events and science, in coordination with the OIE Working Group on Wildlife
		<ul style="list-style-type: none"> • Improve functionality of partnerships with organisations working on wildlife and in the biodiversity conservation sector and engage in new partnerships to actively strengthen wildlife surveillance systems (including laboratory issues and sample transportation)
		<ul style="list-style-type: none"> • Coordinate within the Tripartite+ (WHO-FAO-OIE and UNEP) to develop strategies to create, sustain and strengthen surveillance systems including wildlife
		<ul style="list-style-type: none"> • Develop and adapt specific mechanisms or tools (such as IHR-PVS National Bridging Workshops (NBW), Tripartite zoonoses guide, JEE zoonosis sections in the IHR) to promote and foster collaboration between Veterinary Services and the wildlife sector in developing integrated surveillance protocols
		<ul style="list-style-type: none"> • Collaborate at regional level with selected partners (regional economic communities, regional health agencies etc.) to support the development and/or the sustainable implementation of integrated surveillance systems at national and regional level
		<ul style="list-style-type: none"> • Promote public private partnerships to support the establishment and/or the sustainable implementation of functional sustainable surveillance systems
	Output 2 Veterinary Services assessed and developed their capacities to establish wildlife surveillance systems and wildlife health management along the wildlife trade and supply chain	<ul style="list-style-type: none"> • Review PVS Tool critical competencies and other PVS Pathway components to integrate competencies required for surveillance systems integrating wildlife
		<ul style="list-style-type: none"> • Review Day One competencies curriculum, including both “OIE Guidelines on Veterinary Education Core Curriculum” & “OIE Recommendations on the Competencies of graduating veterinarians (‘Day 1 graduates’), to assure National Veterinary Services of quality” to address gaps in surveillance systems for wildlife and wildlife diseases to ensure optimal core training for veterinary graduates
		<ul style="list-style-type: none"> • Conduct assessment of Veterinary Services’ training needs, including for advocacy, community awareness and engagement, multisectoral and community-based surveillance systems, emerging diseases, disease notification, governance structures, partner network management... and One Health approach (including intersectoral collaboration/multisectoral governance), through review of PVS Pathway reports, targeted questionnaires, and other relevant sources of data at regional level
		<ul style="list-style-type: none"> • Conduct review of existing training material and take stock of relevant training methodologies on selected topics using One Health approach, participatory approaches, community engagement, adult learning methodologies, simulations, and practical exercises
		<ul style="list-style-type: none"> • Develop e-learning modules/training manuals on selected topics in collaboration with OIE Reference Centres on education/wildlife, education partners targeting veterinary professionals, veterinary paraprofessionals, wildlife schools, as well as the veterinary curriculum and dissemination through the OIE e-learning platform

OBJECTIVE 2: OIE Members improve surveillance systems, early detection, notification and management of wildlife diseases

Outcomes	Outputs	Activities
		<ul style="list-style-type: none"> • Conduct multisectoral regional and national workshops on community-based surveillance in wildlife and integrated protocols of surveillance development using participative approaches and simulation exercises • In coordination with the OIE Biological Standard Commission assess Veterinary laboratory capacity to integrate wildlife health management using PVS Sustainable Laboratories missions and/or other assessment tools (FAO Laboratory Mapping Tool, and analysis of data collected through the analysis of OIE-WAHIS data on country laboratory and diagnostic capacities...) • Strengthen cross-cutting veterinary laboratory capacity on surveillance in wildlife, risk management and mitigation measures, specific emerging diseases involving wildlife, wildlife disease to develop diagnostic test capacity, through the OIE Laboratory Twinning Programme • Identify and engage local/regional partnerships to support the Veterinary Services in implementing actions to conduct surveillance in wildlife, as needed
	<p>Output 3</p> <p>Veterinary Services improved the collection, analysis, reporting and utilisation of good quality wildlife health data at national and global level.</p>	<ul style="list-style-type: none"> • Identify and implement actions to support the voluntary reporting of OIE non-listed diseases and mandatory reporting of OIE listed diseases affecting wildlife • Review the wildlife disease data collected by the OIE and other sources of information, and perform subsequent analyses and feedback to OIE Members to ensure maximal utility for risk assessment and risk management for member countries • Conduct advocacy/communication campaign to incentivise reporting of wildlife diseases (and de-stigmatise wildlife diseases in the context of perceived impact on livestock trade) • Engage relevant OIE National Focal Points (NFP) in an interactive and dynamic network, during and between regular OIE seminars (e.g. through creation of a social media type platform, sharing relevant information and documents). Encourage NFPs to utilise, review, and analyse wildlife disease data by providing training (in analysis etc.) and a forum for sharing ideas and information • Deliver training courses to relevant OIE National Focal Points on establishing wildlife disease reporting systems, including best practices on information management technology, standardized data collection methodologies, integrating protecting information, data quality and analysis, translating data into information, managing the whole system, and improve the reactivity of disease notification reporting to OIE-WAHIS through the development of general guidance/SOP • Develop a specific e-learning module to encourage reporting of wildlife diseases through the OIE-WAHIS system, highlighting the utility of the data

OBJECTIVE 2: OIE Members improve surveillance systems, early detection, notification and management of wildlife diseases

Outcomes	Outputs	Activities
Political, policy and scientific environment to allow Veterinary Services to implement wildlife health monitoring and management promoted	Output 4 Guidelines, standards and risk reduction strategies integrating wildlife health issues are reviewed and/or developed	<ul style="list-style-type: none"> Review existing OIE Standards and practical Guidelines to identify gaps and needs on wildlife diseases, wildlife disease? surveillance, risk assessment and risk management relevant to spill-over events of pathogens between wildlife, domestic animals, and humans, and in coordination with other international standard setting bodies
		<ul style="list-style-type: none"> According to needs identified, and in coordination with the OIE Working Group on Wildlife, and specialist Commissions, develop or update OIE Standards and guidelines on wildlife disease? surveillance, risk assessment and risk management relevant to spill-over events of pathogens amongst wildlife, domestic animals, and humans through a multisectoral ad hoc group, comprising conservation NGOs, socio-economic experts, academia, IUCN experts...
		<ul style="list-style-type: none"> Disseminate new or updated OIE Standards and Guidelines, and support the implementation by Veterinary Services through e-learning modules and sub-regional multisectoral workshops
		<ul style="list-style-type: none"> Through relevant PVS Pathway missions (Legislation), support Veterinary Services in their regulatory activities related to wildlife surveillance systems, risk assessment and risk management of spill-over events of pathogens amongst wildlife, domestic animals and humans, managing wildlife diseases, while cooperating with other relevant stakeholders (human health, wildlife/environment, law enforcement, education, and research sectors)
		<ul style="list-style-type: none"> Monitor the implementation of OIE international Standards, using the OIE Observatory by collecting subsequent data sets linked to standards implementation, obstacles and mitigation strategies
		<ul style="list-style-type: none"> Develop an OIE procedure for defining an outbreak as an emerging disease in wildlife with information on the epidemiology of the disease and the potential measures to manage disease risks
Awareness and knowledge of risk pathways and best practices in wildlife health management increased	Output 5 Veterinary Services contributed and have access to new scientific knowledge on wildlife disease? surveillance, wildlife diseases and related risks	<ul style="list-style-type: none"> Comprehensively review the knowledge base and case studies on wildlife diseases threatening wild species population, emerging zoonoses involving wildlife, using information from wildlife surveillance networks, existing databases (IUCN, FAO Forestry), lessons learned from current and past projects (PREDICT, EBO-SURSY...) and the expertise available amongst OIE Reference Centre on wildlife, NFP, the OIE Working Group on Wildlife, and other sources of expertise as appropriate
		<ul style="list-style-type: none"> Identify and update risk maps, including risk pathways, and potential hot spots for wildlife diseases and emerging diseases to better target intervention areas at the regional and national level, using new knowledge and existing databases (Mood Project)
		<ul style="list-style-type: none"> Support scientific studies to identify emerging zoonotic pathogen reservoirs and better understand mechanisms of transmission at the human-animal-ecosystem interface, dynamic of pathogens within wildlife populations through the support of scientific partners, Reference Centres on wildlife and wildlife surveillance networks
		<ul style="list-style-type: none"> Support socio-economic, anthropological, and ethological studies on wildlife interactions and perceptions by at-risk communities living at the human-animal-ecosystem interface
		<ul style="list-style-type: none"> Engage young veterinarians in MSc and PhD training or specialisation in wildlife health management through a grant mechanism or joint funding with Reference Centres

OBJECTIVE 2: OIE Members improve surveillance systems, early detection, notification and management of wildlife diseases

Outcomes	Outputs	Activities
		<ul style="list-style-type: none"> • In order to strengthen curricula, disseminate knowledge to veterinary educational establishments (VEE) and wildlife management institutions via the OIE e-learning platform or via expertise available in Reference Centres
	<p>Output 6 Advocacy, awareness, and risk communication tools about wildlife health issues, integrating One Health concepts and behavior change strategies are disseminated</p>	<ul style="list-style-type: none"> • Develop an outreach strategy to raise awareness and lobby targeted stakeholders about the importance of wildlife health to maintain healthy and functioning ecosystems and to fully integrate wildlife health in animal health strategies • Assess the needs at regional level and identify existing innovative awareness tools focusing on behaviour change, on the topic of spill-over prevention, wildlife diseases, wildlife protection, disease? surveillance systems, targeting Veterinary Services, at-risk local communities, wildlife disease? surveillance networks, veterinary and paraveterinary schools/training institutions, One Health platforms and governments • Produce awareness tools focusing on behaviour change methodology to cover the gaps identified. These tools should be adapted to the regional contexts, including gender consideration, and integrate the One Health concept to engage stakeholders in wildlife surveillance systems, wildlife diseases, risk management and prevention • Support the Veterinary Services and their partners in the local adaptation of the awareness tools to raise awareness amongst local communities and to engage them in wildlife disease? surveillance systems, risk management, prevention, and protection of wildlife • Support the dissemination of the awareness tools by Veterinary Services to targeted stakeholders in collaboration with relevant local or regional partners and stakeholders as needed to reach a wider audience • Support Veterinary Services in lobbying decision makers, including in governments, regional economic communities, and One Health platforms, in securing sustainable funding and political support to implement integrated and multisectoral wildlife disease? surveillance systems and ensure investments are made to take a holistic approach to wildlife health