



Guidelines for disease risk management in wildlife trade supply chains and markets

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Background

- Wildlife provide essential ecosystem services and are a key component of overall biological diversity.
 - Wildlife is also an important source of protein, income, and livelihoods for many locals, whilst also important for national and regional economies through tourism and nature-based recreation.
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- Risk of pathogen spillover and disease emergence amplified by steady increase in level of interaction between humans, wildlife, and domestic animals.
 - Wildlife trade and use, both legal and illegal, has been identified as a risk factor for disease spillover, emergence and spread, specifically risks relating to zoonotic pathogens.



Background

- In April 2020, the OIE Wildlife Working Group released a statement highlighting the complexities, benefits, and challenges of wildlife trade.
- Early in 2021, a consultant-led ‘rapid review of evidence on managing the risk of disease emergence in the wildlife trade’ was completed.
- The review emphasised:
 - Current evidence base to inform risk mitigation strategies for wildlife trade is weak.
 - Limited number of studies, many with biases towards zoonoses, certain geographical regions, specific activities (animals for food and live animals).
 - Risk management solutions need to be attentive and adaptable to different socio-ecological, socio-political and/or cultural settings.

A RAPID REVIEW OF EVIDENCE ON MANAGING THE RISK OF DISEASE EMERGENCE IN THE WILDLIFE TRADE

Prepared for the Preparedness and Resilience
Department of the
World Animal Health Organization (OIE)
Paris, France

February 18, 2021
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Canada



WOAH Ad Hoc Group

- WOAHA drew together an Ad Hoc Group (AHG) to develop guidance for risk management.
- Seed-funding from the Australian Government.
- Participants
 - from multiple sectors and multilateral organisations
 - with expertise in wildlife crime, wildlife trade, animal welfare, risk assessment, veterinary services, animal health standards, ecology, public health, social and behavior change and systems-thinking.
- Content developed :
 - Over a series of 7 virtual meetings in addition inter-sessional work since June 2021,
 - Informed by the subject matter expertise of the group, previous work (e.g. IBPES, WHO-UNEP-OIE report) and complemented by ongoing literature review and resource sharing.



The Guidelines - Overview



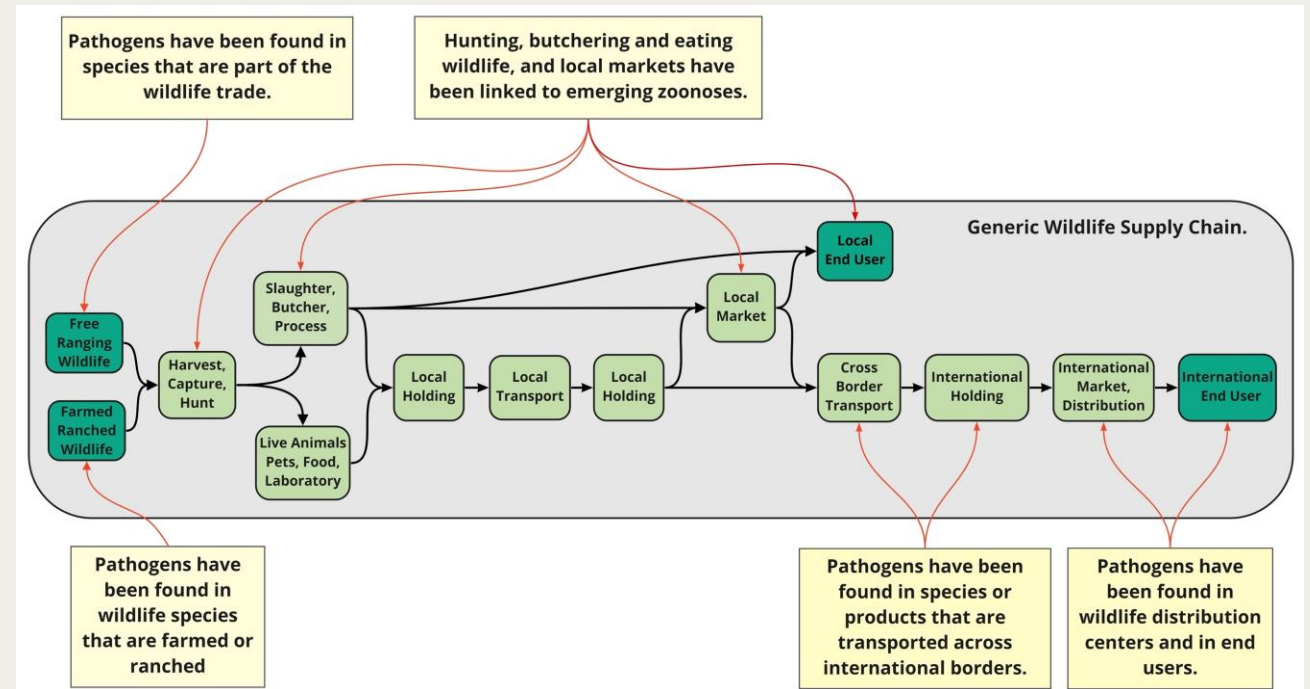
- Overview**
- Provides a high-level framework to support informed decision-making in the face of uncertainty and complexity.
 - Approaches to enable users to select pragmatic and relevant risk reduction / intervention strategies according to identified risk, context and need
 - References well established standards and other guidelines to support implementation, where available.
 - Over time, the interim *Guidelines* will require review and revision as new knowledge is generated and shared.





Overview

- **Primary audience:** Veterinary Services, Wildlife Authorities, Public Health authorities, other Competent authorities with a mandate on animal health and welfare, public health, wildlife management and trade, law enforcement.
- **Any potential or infectious pathogen at any interface.**
- Commercial and non-commercial, legal (both regulated and unregulated) and illegal wildlife trade.
- **Wildlife includes wild animals and captive wild animals.** Feral were out of scope.



Generic Wildlife Supply Chain [Credit Dr. John Berezowki, adapted from Stephen C, Berezowski J et al. 2021 Rapid Review of Evidence on Managing the Risk of Emerging Diseases in the Wildlife Trade. Prepared for the Preparedness and Resilience Department.



Aspects unique to Wildlife Trade

to consider when undertaking risk assessments and identifying risk reduction strategies

Overarching Considerations

- There are **more wild animal species** than domestic animal species.
- Wildlife species may **be legally protected, listed on CITES Appendices and/or in a threatened category of the IUCN Red List**, and in many cases hunting and trade of wildlife is regulated or prohibited by local, national, or international law.
- Identification, traceability, and movement control is only possible for some individuals
- There are a wide range of uses, including for food, traditional medicine, ornaments, pets, etc
- There are a wide range of individuals and groups directly and indirectly involved in or impacted by wildlife trade
- Wildlife trade may occur in a variety of physical settings e.g., at small local markets, larger more complex markets and along supply chains of varying length and complexity.
- Wildlife **may be wild-sourced**, or captive bred and then subsequently ranched or farmed.
- Wildlife trade and related supply chains are **highly variable and complex**, including both illegal and legal trade.



Aspects unique to Wildlife Trade

to consider when undertaking risk assessments and identifying risk reduction strategies

Disease and Health

- Drivers of disease emergence may differ locally and regionally.
- Wildlife trade presents **opportunities for mixing of species not normally in contact** (e.g., variety of taxa from differing geographic locations).
- There are animal husbandry and welfare requirements bespoke to each species and scenario (e.g., transport conditions; short-term vs long-term captivity).
- **Pathogen transmission pathways and risk factors may be unknown or less understood** and are not necessarily transferrable to another species in the same genus or family or higher taxa.
- Knowledge of species / taxa pathogens may be limited or biased to studies limited to specific time periods, scenarios, or geographic locations.
- It can be challenging to collect biological samples representative across space, time, and taxonomic diversity
- Species that fall under specific conservation regimes may hamper rapid sample shipment to diagnostic laboratories (e.g., CITES permit requirements).
- There may be **limited or no validated diagnostic tests** for all species; challenges in validating diagnostic tests for wildlife.
- Reference values and knowledge on host biology and physiology are often missing.
- There is a need for specific training requirements for actors and personal involved from harvester to end-use in addition to wildlife health monitoring and management (e.g., wildlife veterinarians, wildlife pathologists, etc).
- Disease surveillance and disease control in wildlife is challenging.

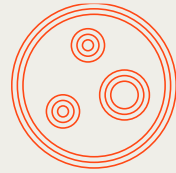


The Guidelines - Content

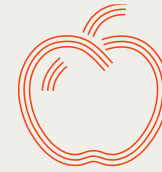




Steps



Describe the wildlife trade system for which risks are to be addressed and the objectives to be achieved.



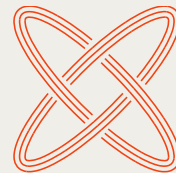
Conduct risk analysis via engagement with subject matter experts



Identify and engage with stakeholders, champions and experts



Develop management and intervention strategies using the Hierarchy of Controls or other approaches.



Use structured decision-making to address complex, multidimensional problems and trade-offs.



Develop metrics for each intervention and monitor and assess effectiveness. Adjust accordingly.



Identify and prioritize the risky wildlife trade activities.

Identify and engage with stakeholders, champions and experts

- Collaboration and inclusive approaches required at all stages.
- Communication and engagement critical to build awareness, understanding and support.

Indigenous people and local communities (IPLCs) (subsistence)
 Meaningful engagement and involvement in decisions about future use and management critical given dependence of IPLCs on wildlife and will ensure their knowledge, effective conservation of wildlife as well as ethical and cultural dimensions are considered

National government authorities	Related frontline personnel and practitioners
Engagement will	Engagement will
<ul style="list-style-type: none"> • Raise awareness, safeguard uptake of existing regulations and promote legal reform • Ensure current regulatory and legal context are considered 	<ul style="list-style-type: none"> • Raise awareness, safeguard uptake of existing regulations and promote legal reform • Capture critical context
<ul style="list-style-type: none"> • Veterinary and animal health authorities (e.g. WOAH Delegates, WOAH National Focal Points for Wildlife) 	<ul style="list-style-type: none"> • Veterinary services • Animal health and welfare auditors and inspectors • Veterinarians
<ul style="list-style-type: none"> • Food safety authorities • Public health authorities 	<ul style="list-style-type: none"> • Food safety inspectors • Doctors and medical personnel
<ul style="list-style-type: none"> • Biodiversity authorities and sectors • Environmental authorities and sectors • Natural resource authorities and sectors • Forestry authorities and sectors • Fisheries authorities and sectors 	<ul style="list-style-type: none"> • Wildlife managers and officers • Conservation managers and officers • Natural resource manager officer • Fisheries managers and officers • Forestry managers and officers • Environmental management officers
<ul style="list-style-type: none"> • CITES enforcement authorities • CITES management authorities • CITES scientific authorities 	<ul style="list-style-type: none"> • CITES enforcement officers • CITES management officers • CITES scientific officers
<ul style="list-style-type: none"> • Customs and port authorities • Biosecurity authorities 	<ul style="list-style-type: none"> • Customs and port authority officers • Biosecurity officers
<ul style="list-style-type: none"> • Law enforcement authorities • Military and other related agencies • Peacekeepers and other security agencies 	<ul style="list-style-type: none"> • Law enforcement officers • Police officers • Peacekeepers and security personnel • Military personnel
<ul style="list-style-type: none"> • Market and in-country trade authorities 	<ul style="list-style-type: none"> • Market and trade authority officers and inspectors

Private sector and civil society Domestic and international groups and organisations **Related frontline workers**

Engagement provides opportunity to raise awareness as well as capture knowledge and context factors that will allow or restrict successful implementation

<ul style="list-style-type: none"> • Wildlife traders and suppliers (including corporate businesses, i.e., exotic pet shops, manufacturers, etc) • Wildlife processors • Wildlife farms • Ranching facilities • Other actors along the supply chain 	<ul style="list-style-type: none"> • Harvesters and hunters • Provincial towns and metropolitan based wildlife traders • Farmers (wildlife) • Hobbyists or exotic pet owners • Individual traders, processors, sellers, butchers, trade intermediaries
<ul style="list-style-type: none"> • Captive breeding facilities • Zoological institutions • Wildlife rescue centres 	<ul style="list-style-type: none"> • Captive breeders • Zookeepers • Recue centre personnel
<ul style="list-style-type: none"> • Transport/cargo sector (e.g., the International Air Transport Association [IATA] and the International Federation of Freight Forwarders Associations [FIATA]) 	<ul style="list-style-type: none"> • Freight, cargo and transport personnel
<ul style="list-style-type: none"> • Urban consumers/end-users in provincial towns and metropolitan cities 	<ul style="list-style-type: none"> • General public and community end-users (e.g., of live animals, such as pets, traditional medicine or wildlife products/derivatives such as meat, skins, fur)
<ul style="list-style-type: none"> • Non-Government Organisations • Universities • Agricultural and livestock sectors 	<ul style="list-style-type: none"> • Field researchers and practitioners • Educators • Scientists • Farmers (domestic species)

Private sector, donors, development banks and aid agencies, ministries of finance, chambers of commerce and civil society

Meaningful engagement and involvement in decisions about future use and management critical given dependence of IPLCs on wildlife and will ensure their knowledge, effective conservation of wildlife as well as ethical and cultural dimensions are considered

International agencies and organisations

- Engagement necessary to raise awareness, safeguard uptake of existing regulations and promote legal reform
- Ensure current regulatory and legal context are considered

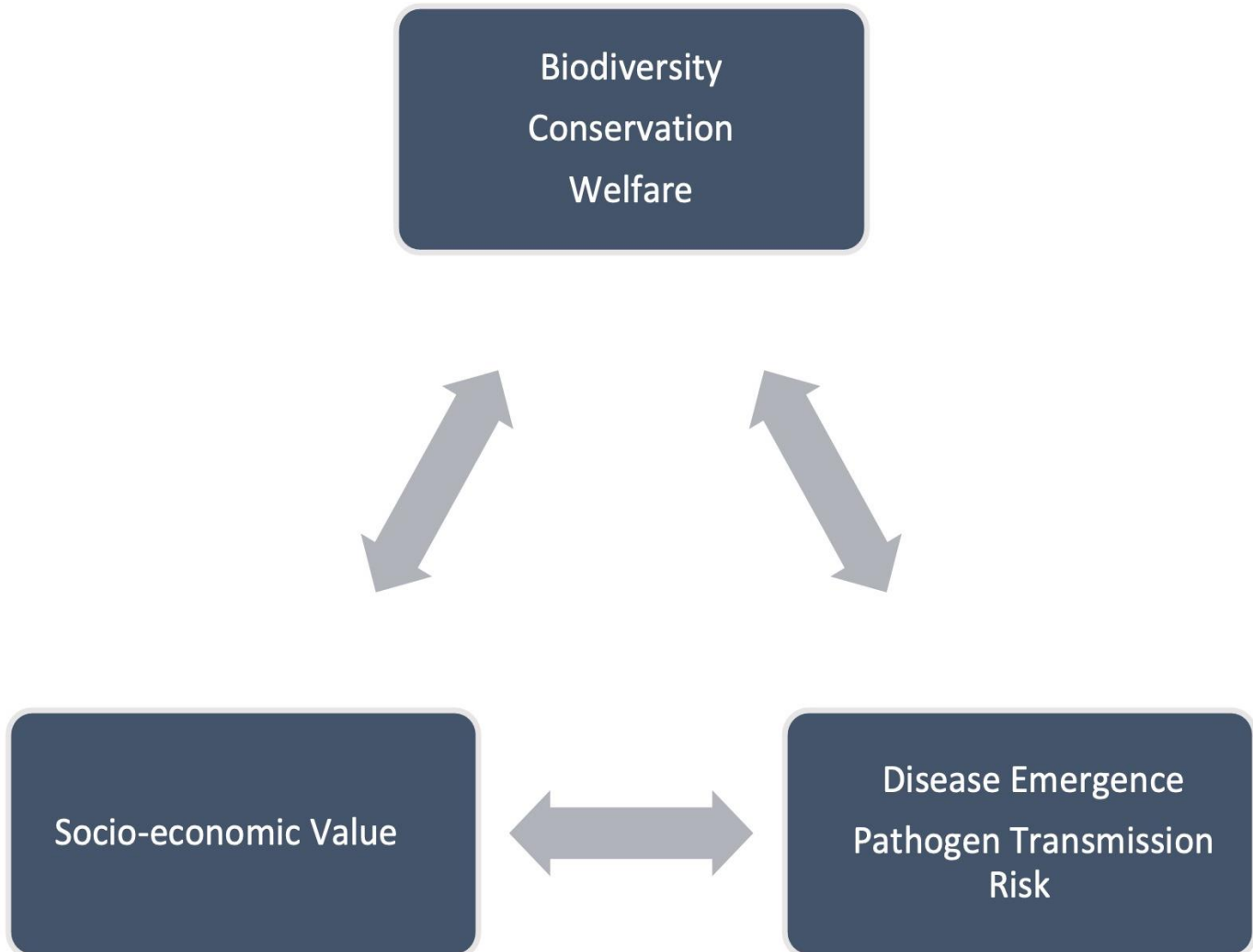
FAO	Food and Agriculture Agency	UNEP	United Nations Environment Programme	WHO	World Health Organization
FIATA	International Federation of Freight Forwarders Associations	UNODC	United Nations Office on Drugs and Crime	WOAH	World Organisation for Animal Health
IATA	International Air Transport Association	UNTOC	United Nations Convention against Transnational Organized Crime	WTO	World Trade Organisation
INTERPOL	International Criminal Police Organization	WCO	World Customs Organization		



Use structured decision-making

Multi-hazard risk reduction strategies that balance and account for risks to:

- Animal health and welfare,
- Conservation,
- Socio-economic values.





Identify and prioritize the risky wildlife trade activities.

Conduct risk analysis via engagement with subject matter experts

Document any biases or limitations of the information available

Practices:

- Harvesting practices
- Transportation practices
- Hygiene and biosecurity practices
- Butchering and meat processing practices

Taxa used in trade:

- Conservation status and role in ecosystem
- Source population and ecosystem management status
- Socio-cultural and religious status

Interspecies contact and densities:

- People
- Domestic species
- Other wildlife species
- Human contact with wildlife at markets

Wildlife Trade Sale/Trade Chain Type:

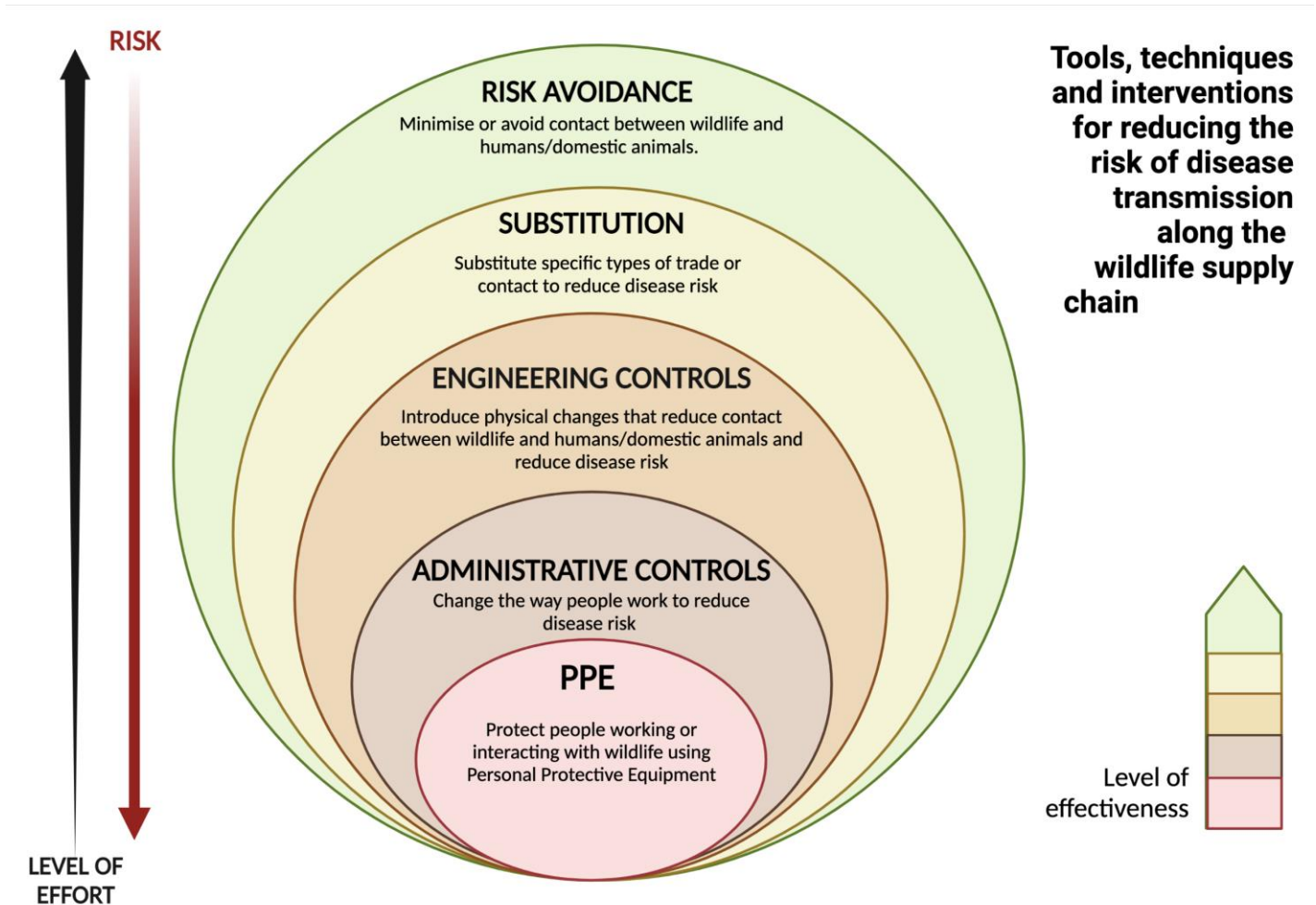
- Length and type of trade supply chains
- Hygiene and biosecurity conditions
- Number and turnover of people
- Distance people (buyers, sellers, farmers, etc.) travel locations along supply chain/market

Current government capacity to implement and regulate trade



Develop management and intervention strategies using the Hierarchy of Controls or other approaches.

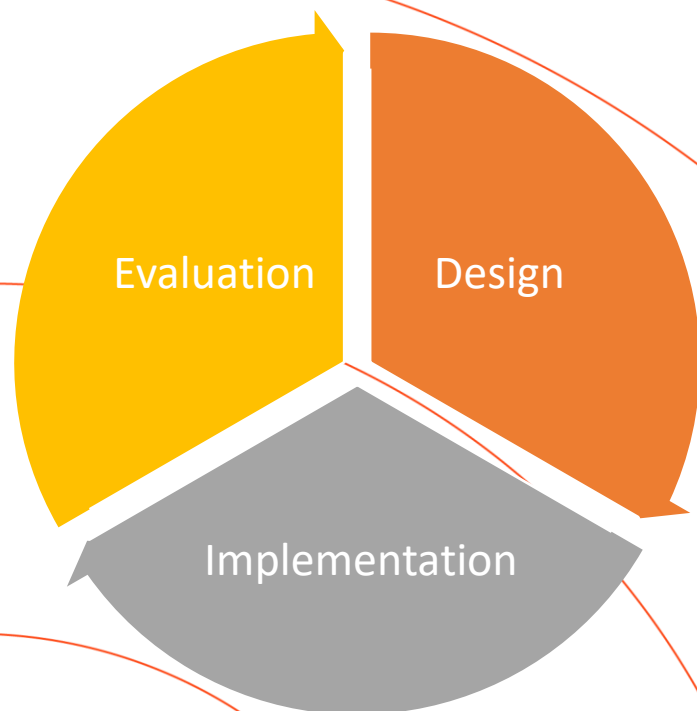
- Tailor intervention strategies to regionally and locally unique socio-ecological conditions and interactions.
- Prior to and during implementation, consider and document any potential unintended consequences upstream or downstream.





Develop metrics for each intervention and monitor and assess effectiveness.

Adjust accordingly.



Outcome indicators

- Prevalence of zoonotic pathogens selected (e.g. Avian Influenza viruses, *E Coli*, etc)
- Number of human cases of zoonotic pathogens, as selected
- Number of disease events caused by selected zoonotic pathogens

Process indicators

- Number of samples tested
- Number of actions taken (including policies enacted and enforced) to reduce risk
- Risk assessment procedures established
- Number of risk assessments conducted

Proxy indicators at critical points in the wildlife supply chain

- Free ranging wildlife
 - Population counts / remote sensing counts
- Harvest, capture, hunt
 - Hunting statistics
 - Number of people trained
- Slaughter, butcher, process
 - Registered premises
- Local market
 - Market volumes
 - Tax revenues
- Legal cross border transport
 - Border control statistics
- Illegal cross border transport
 - Border control statistics
 - Interpol statistics



Overarching Concepts



Image: pixabay.com

- Share successful approaches and lessons learned to support a community of practice:
- Knowledge exchange and implementation data monitoring platforms:
 - PANORAMA Solutions for a Healthy Planet : <https://panorama.solutions/en>
 - WOAHA Observatory: <https://www.woah.org/en/what-we-do/standards/observatory/>



Image: pixabay.com

- **Tools to identify critical capacity gaps and requirements**
 - Gaps, Needs, and Capacity Requirements
 - Governance Structures and Mandates
 - Finance incentives and justification
- **Advice on implementation, risk communication and training**
 - Knowledge gaps
 - Coordination
 - Risk Communication



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