

# Country Assessment for the Environment Sector in Health



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for Animal  
Health

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**6<sup>th</sup> cycle Training of National Wildlife Focal Points**

**6e cycle de formation des Points focaux nationaux pour la faune sauvage**

**Africa Region Afrique**

**World Organisation for Animal Health**

**Organisation mondiale de la santé animale**



# Catherine Machalaba

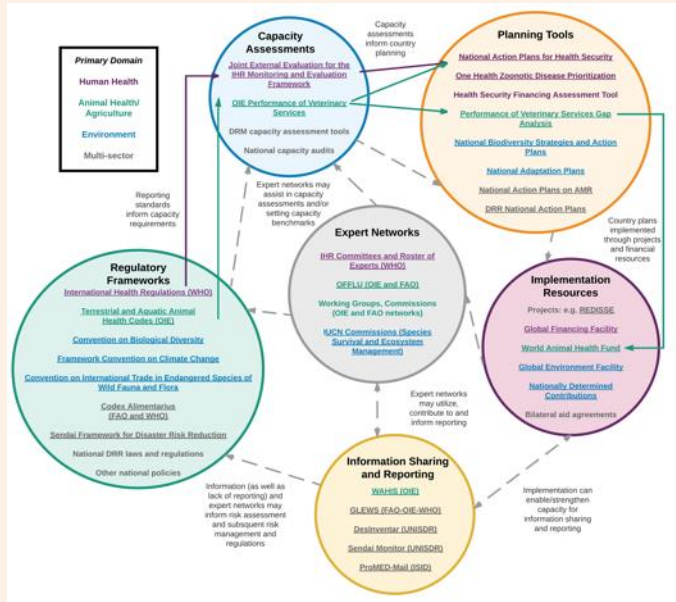
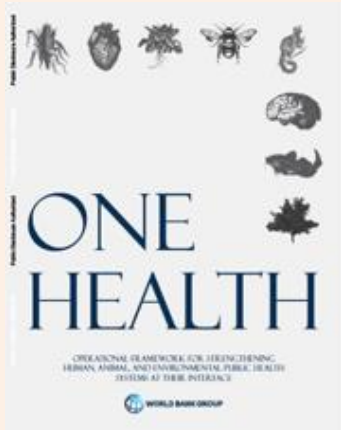


- Based at EcoHealth Alliance since 2010 assisting Dr. William B. Karesh
- PhD in environmental and planetary health sciences
- Programme Officer for the IUCN Species Survival Commission Wildlife Health Specialist Group for 10 years
- Member of the One Health High-Level Expert Panel
- World Bank One Health Operational Framework author team



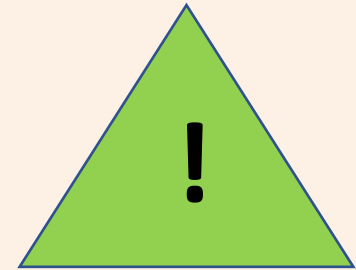
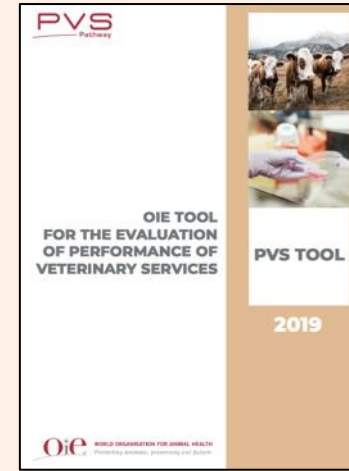
# Background

Reviews of existing financing, assessment, and planning tools



**Global gap in capacity assessment and planning for *environmental health systems***

## Gaps in current scope of tool ownership



**Environment**

## Gaps in existing financing

TABLE 5.3: Funding of Wildlife Health Services

ITEM	INVESTMENT	OPERATING COSTS
Average annual wildlife budget per country (US\$) for:	US\$3.3 million	US\$5.0 million
• Disease surveillance		US\$9,700
• Disease diagnostics		US\$11,200
• Disease control		US\$4,300
• Other aspects of ecosystems health (pollution, etc.)		US\$9,300

Source: This study's analysis.

## Gaps in use of existing tools

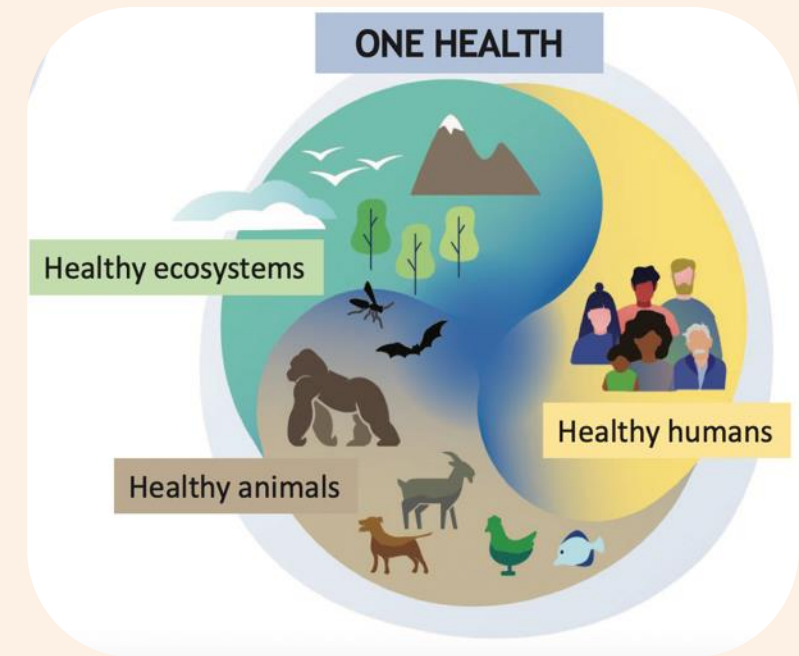
Assessment or Planning Tool	Countries with evidence of functional wildlife health activities
JEE and/or PVS	45/107 (42%)
NBSAP	8/125 (6.4%)

Machalaba, Uhart, Ryser-Degiorgis, Karesh. Gaps in Health Security Related to Wildlife and Environment Affecting Pandemic Prevention and Preparedness. 2021. *Bulletin of the World Health Organization*



# Background

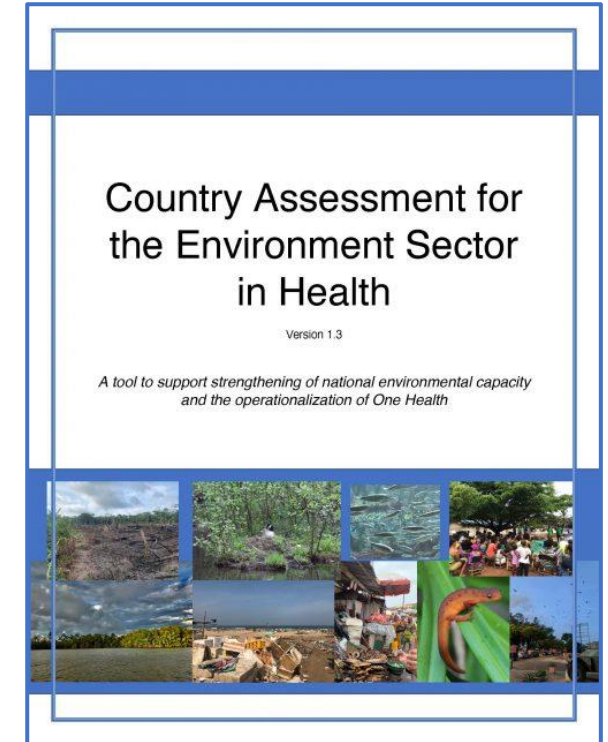
- The more inclusive One Health definition reminds us of wildlife and broader environmental health outcomes - and **equity among relevant sectors**
- There are no parallel international standards for environment, but at a national level we can benefit from practical tools to identify whether resourcing is sufficient and what the major gaps are
- An Assessment tool will improve readiness to achieve:
  - The Post-2020 Biodiversity Framework
  - The WOAHA Wildlife Health Framework
  - The One Health Joint Plan of Action (including Action Track 6: *Integrating the Environment into One Health*)





# Overview of Tool

- Status: Ground-truth in Liberia (2018), pilot in Ghana (2021), revision (2022)
- Objective: examine whether coverage (e.g. capacity, funding, operational scope) is adequate to address risks and vulnerabilities of the country, and what needs to be prioritized to fill gaps in line with a One Health approach
- Scope: protection of natural systems and management of threats
- Practical use: Provide an input to National Action Plans and investments:
  - *Clarify mandates, resources, and implementation capacity related to wildlife/environment*
  - *Identify tangible entry points for wildlife and environment sector: show value and target needs*
  - *Have a realistic sense of what is feasible for expected outcomes*

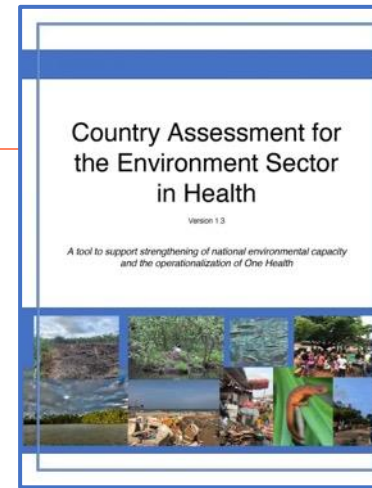


<https://www.ecohealthalliance.org/country-assessment-for-the-environment-sector-in-health>





# Tool Topics



## *Common to the PVS*

### **Resources, Governance, and Collaboration**

- Personnel Resources
- Financial Resources
- Governance/Legal Authority
- Collaboration

### **Technical Aspects**

- Environmental Surveillance
- Laboratory
- Risk Analysis
- Emergency Management

## *Specific Technical Topics*

### **Focal Issues**

- Aquatic and Terrestrial Wildlife and Ecosystems
- Vectors
- Invasive Alien Species
- Plants and Soil



# Tool Pilot – Ghana

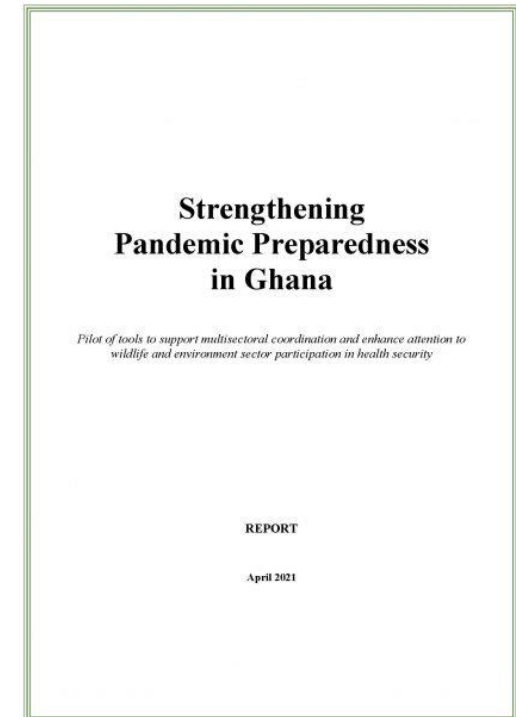
- Environment and wildlife-related mandates vary by agency, with 23 institutions identified as relevant to environmental health
- **Agencies tasked with completing relevant sections; information brought together and validated/refined in One Health workshop**
- Examples of priority recommendations:
  - Expand the Field Epidemiology and Laboratory Training Program (GFELTP) to include wildlife and environment officers
  - In the process of updating the Animal Diseases Act, review mandates for all animal disease functions and interfaces, to ensure coverage of wildlife is sufficiently included as relevant
  - Develop costed national wildlife disease and pathogen monitoring strategy under the Wildlife Division



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Animal &  
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# Practical Questions!

- *Are there key budget gaps or shortfalls that inhibit specific environmental health-related operations? What practical implications do these have for achieving other goals (e.g. disease prevention, detection, or response in relation to humans, animals, plants, and/or ecosystems)?*
- *If there is a One Health coordination platform, are all departments relevant to environmental health sufficiently represented? (for example, those with mandates for marine and freshwater ecosystems, terrestrial ecosystems, climate change and desertification mitigation and adaptation, sanitation and waste management, biodiversity and wildlife management, land planning/concessions, chemical or pollution management, etc.)*
- *Are risks to any of the following topics built into any process(es) for planning (e.g. natural resource or other development planning)?: Biodiversity, Ecosystem services, Health risk or outcomes*
- *Are any coordinated/joint risk assessments conducted for threats at human-animal-environment interfaces? Consider the adequacy of environment/wildlife sector inputs in these processes, as well as suitability of the outputs.*





# Aquatic and Terrestrial Wildlife and Ecosystems

*The authority and capability to manage wildlife and ecosystems in ways that protect the health of people and the environments they depend on*

- 15 main questions

## Wildlife and Ecosystem-Specific Questions

Consider coverage and note relevant gaps

**Is laboratory diagnostic capacity available for identifying pathogens or toxins in wildlife? Consider adequacy of the scope (e.g. particular diseases, species, or sites).**

**Is there a national list of aquatic and terrestrial protected wildlife? What is it based on – is disease risk considered?**

**What key threats to wildlife/ biodiversity are identified? Which Ministries are actively involved in addressing them?**

**What sources of information are included in natural resource planning?**

- National/local protected or threatened species listings; Protected area classifications; CITES Appendices; IUCN Red List of Threatened Species; IUCN Red List of Ecosystems; IUCN Key Biodiversity Areas; Ramsar wetland site designations; Ecosystem services assessments/IPBES; Risk analyses; Other

**Are the potential health consequences from ecosystem modification considered in land/sea use planning?**



# Vectors

*The authority and capability to manage vectors in ways that protect the health of people, domestic animals, wildlife, and the environments they depend on*

- 10 main questions

## Vector-Specific Questions

**Is laboratory diagnostic capacity available for identifying pathogens in vectors?**

**Is entomological laboratory capacity available? Is insecticide resistance testing conducted?**

**Is there a list of vectors of concern for the country? What is it based on – is disease risk considered?**

**Have key sources of vector infestations and/or vector-borne disease outbreaks been identified for the country? Which ministries are engaged in addressing them?**

**Consider the adequacy of any vector monitoring (surveillance) and control measures occurring at points of entry occurring in recent years**

**What entity is in charge of vector control?**

**Please detail any vector control measures undertaken in recent years, including integrated pest management. Were these ad hoc, or part of an ongoing program?**

**Has any vector resistance (e.g., to insecticides) been detected over recent years? Consider adequacy of response measures.**



# Invasive Alien Species

*The authority and capability to manage invasive alien species (“IAS”, including aquatic and terrestrial animals, insects, and plants) in ways that protect the health of people and the environments and natural resources they depend on*

- 7 main questions

## IAS-Specific Questions

**Is laboratory diagnostic capacity available for identifying pathogens in introduced species?**

**Is there a list of IAS of concern? What is it based on – is disease risk considered?**

**Consider the following scope for current IAS monitoring:**

- Geographical (e.g. distribution in country)
- Taxonomic (e.g. mammals, vectors, plants, etc.)
- Ecosystems and settings (e.g. coastal, freshwater lakes and rivers, protected areas, urban settings)

**Have key sources of IAS introduction been identified for the country? Which ministries are engaged in addressing them?**

**What entitie(s) are in charge of IAS control?**

**Consider adequacy of any IAS control measures undertaken in recent years. Were these ad hoc, or part of an ongoing program?**

**Consider whether staffing is adequate for the following expertise areas:**

- Entomology; Ecology, aquatic; Ecology, terrestrial; Geospatial analysis; Quarantine and border patrol; Taxonomy



# Plants and Soil

*The authority and capability to manage plants and soil in ways that protect the health of people and the environments they depend on*

- 11 main questions

**Background:**  
Plant health is important for ecosystems as well as agricultural production. Cultivated and wild plants may face threats from pests (insects, mites) and pathogens (bacteria, fungi, viruses and nematodes) and other invasive animals and plants. Contaminated soil and other plant growing media may be a route for plant contamination.<sup>40</sup> Plants may be a source of exposure to pesticide residues and other toxins; rapid identification and containment is crucial to prevent more extensive harm to public health and the surrounding environment. Trading partners may require adherence to the Phytosanitary Measures (as part of the Sanitary and Phytosanitary, or SPS, agreement) through the World Trade Organization, which sets international trade requirements relevant to plant health per the International Plant Protection Convention and includes reporting obligations of member states (e.g. for regulated pest status in a country or area). International trade (including ornamental plants) is a potential source of introduction and thus biosecurity measures should be in place to monitor possible risks (such as plant quarantine upon import or national regulations). Plants may also serve as bioindicators for ecosystem degradation (e.g., mitigation of air pollutants as well as provision of other ecosystem services (e.g. prevention of soil erosion, water purification, coastal flood protection, creating conditions unsuitable for pest populations); however, the provision of these services varies greatly by plant species. Vegetation experts can provide guidance on appropriate species. Management of soil erosion risk is also an important consideration for natural resource planning and/or disaster risk management.

## Plant- and Soil-Specific Questions

**Is laboratory diagnostic capacity available for identifying pathogens or toxins in plants? Is capacity available for identifying pathogens or toxins in soil?**

**Is there a list of protected plant species? What is it based on – is disease risk considered?**

**Have key sources of plant pathogens been identified for the country? Which ministrie(s) are engaged in addressing them? What risk reduction actions are undertaken?**

**Specify details of any plant pathogen or pest monitoring or management at points of entry in recent years:**

**Consider adequacy of antimicrobial use tracking and antimicrobial resistance monitoring in plant production and agriculture management.**

**Consider adequacy of any monitoring, prevention, or control measures related to soil and/or plant growing media contamination (pathogen, pest, chemical, heavy metal or radiological) in recent years. Were these ad hoc, or part of an ongoing program?**

**What entity is in charge of management of soil erosion? What risk reduction actions are undertaken?**



# Lessons Learned

- Mandates vary by country – and wide scope of environment indicates why fragmentation is common
- Requires a broad range of assessor expertise – could be served by a multi-agency partnership to support baseline benchmarking
  - *Can apply the tool to a narrower scope (e.g. for wildlife services specifically, for example)*
- Be aware of which departments are routinely at the table in One Health coordination – potential to miss important aspects
- Gaps become obvious in terms of what isn't being done – can be used for internal self-assessment (e.g. by topic or geographic unit)

## Assignment of tool sections by agency

I. Resources, Governance, and Collaboration			
	<i>a. Personnel</i>	NPHIL, MOA, MOH, FDA, EPA, MOCI, EPA, CARI, NDMA, and Fisheries	Page 13-15
	<i>b. Financial Resources</i>	All as per the above	Page 17-18
	<i>c. Governance/Legal Authority</i>	All as per the above	Page 20-22
	<i>d. Collaboration</i>	All as per the above	Page 23-24
II. Technical Aspects			
	<i>a. Surveillance</i>	NPHIL, MOA, MOH, FDA, MOCI, CARI	Page 26-28
	<i>b. Laboratory</i>	NPHIL, MOA, MOH, FDA, MOCI, CARI	Page 31-32
	<i>c. Risk Analysis</i>	NPHIL, MOA, MOH, FDA, MOCI, CARI	Page 35-37
	<i>d. Emergency Management</i>	NPHIL, MOA, MOH, FDA, MOCI, CARI	Page 40-41
III. Focal Issues			
	<i>a. Aquatic and Terrestrial Wildlife and Ecosystems</i>	MOA, FDA, CARI and Fisheries	Page 34-45
	<i>b. Vectors</i>	MOH/Malaria Program, NPHIL - DEOH	Page 47-48
	<i>c. Invasive Alien Species</i>	FDA, MLME, MOA	Page 49
	<i>d. Plants and Soil</i>	MOA, CARI and UL	Page 51-52

*Courtesy of the National One Health Coordination Platform of Liberia*





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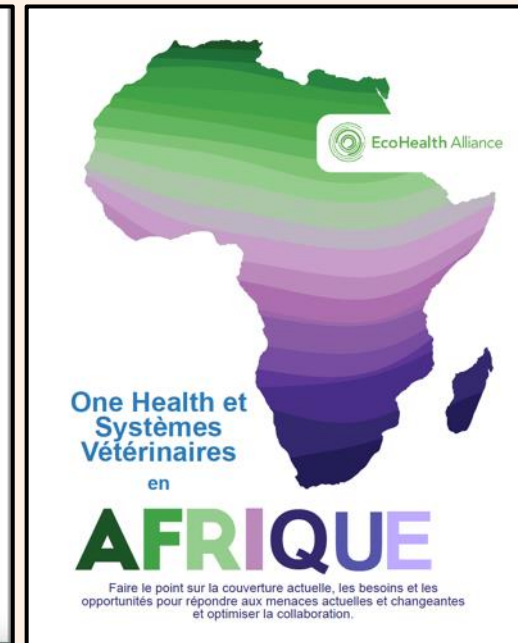
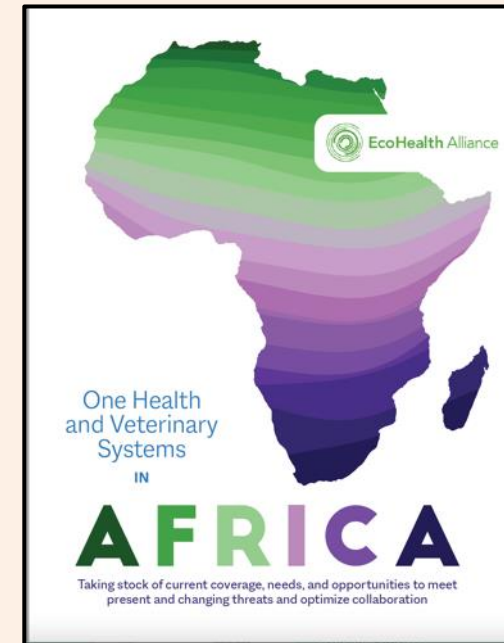
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# Recent Report

*Review of current veterinary and One Health initiatives and capacity at country, regional, and continent level*

- Orientation to current status and gaps (strengths, weaknesses, opportunities, and threats)
- Examination of how wildlife and environment agencies and initiatives fit into existing veterinary and One Health programs and systems
- Call to action to track information on wildlife health services and focus attention on evolving risks and relevant workforce training and staffing needs



<https://www.ecohealthalliance.org/2022/11/one-health-and-veterinary-systems-in-africa>



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# System Indicators



<https://openknowledge.worldbank.org/handle/10986/37327>

Indicator	Countries showing evidence of indicator*
Policies (such as for livestock or land use development) account for disease risk from wildlife	China, Malaysia (for Nipah virus)
Institutional mandate for managing wildlife disease/pathogen risk	China, Indonesia, Malaysia, Thailand, Viet Nam
Wildlife authority included in national One Health body*	Indonesia, Malaysia, Thailand, Viet Nam
Mechanism for inter-agency coordination if authority for risk management is shared	China, Malaysia, Thailand
Risk analysis process in place for assessing and managing risk at wildlife-domestic animal and wildlife-human interfaces	Viet Nam
Plan/strategy in place for systematic surveillance and risk reduction	Thailand, Viet Nam
Dedicated budget for wildlife disease system	China, India, Malaysia
Wildlife monitoring network	China, Indonesia, the Lao People's Democratic Republic, Malaysia, Thailand
Access to laboratory for testing wildlife specimens	China, India, Indonesia, the Lao People's Democratic Republic, Malaysia, Thailand, Viet Nam
Wildlife disease database	Indonesia
Alert system in place for early warning and response	Indonesia
Pipeline for wildlife veterinary/para-veterinary workforce in non-zoo settings	India, Malaysia, Thailand
Applied field epidemiology training program for wildlife surveillance and investigation	China, Thailand



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# Virtual Workshop

***“Zoonosis and wildlife health, focusing on zoonotic disease risk prevention actions using the One Health approach in protected areas”***

- 17 November, 12:00 – 16:00 Central Africa time
- Moderated by Dr. Jackson Katampi (National Parks and Wildlife, Zambia)
- Presentation of:
  - Guidance documents prepared by IUCN
  - Overview of Zoonotic Disease and Protected Areas from a regional and global perspective
  - Solutions from the African region



***Please join us!!***







# Conclusions

- **At global level, need a clear financing mechanism to address gaps in wildlife and environmental health services**
- Benchmarks and scoring are aspirational at this point; needs vary widely based on relevant risks and impacts
- The assessment process can increase awareness about the relevance and importance of wildlife and ecosystems among stakeholders in line with a One Health approach
- Determine what can be done with existing resources, and what needs dedicated attention and long-term investment

- **Planning:** Conduct assessment to prepare for planning exercises
- **Risk analysis:** Consider wildlife health and ecosystem services in cost-benefit analyses (trade-offs and co-benefits!)
- **Implementation:**
  - Guide site management planning and protocols
  - Fill workforce gaps
  - Identify and advocate for key financing needs



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With thanks to the governments of Ghana and Liberia and key partners including:

- World Bank
- University of Ghana
- UK Animal and Plant Health Agency
- National One Health Coordination Platform of Liberia
- WOAHA, WHO, and UN CBD colleagues
- Richard Suu-Ire and Sonpon Blamo Sieh Sr.

Download the tool at:

<https://www.ecohealthalliance.org/country-assessment-for-the-environment-sector-in-health>



United Republic of Tanzania



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Ministry of Livestock and Fisheries  
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