

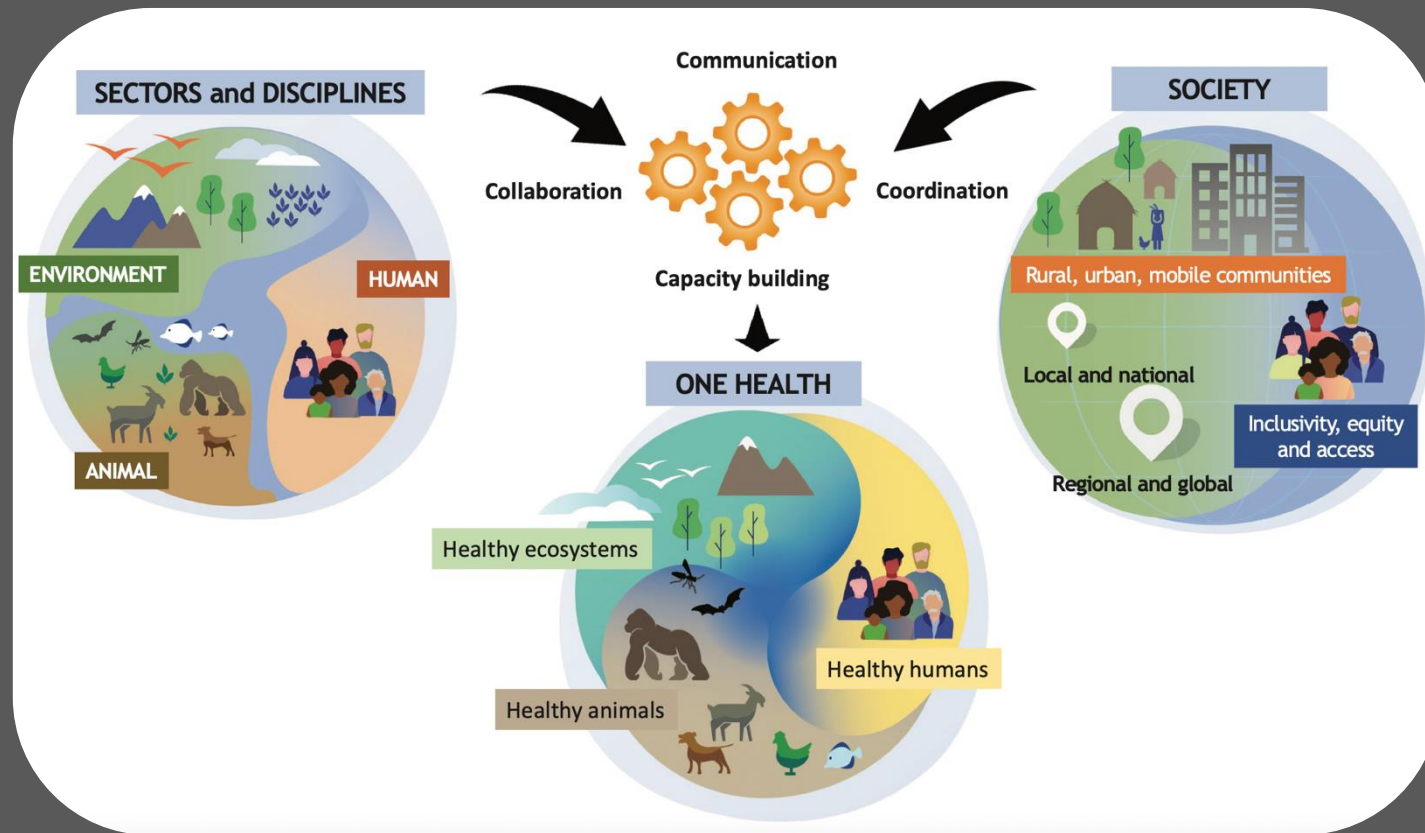
# Financing for mainstreaming biodiversity through a holistic, inclusive One Health approach

Catherine Machalaba, PhD MPH

*Global Workshop on Biodiversity, traditional knowledge, health and well-being  
27 July 2023*



# Balancing Trade-Offs and Co-Benefits



## Box 1. OHHLEP One Health Definition Foundational Principles

1. Equity between sectors and disciplines.
2. Sociopolitical and multicultural parity (the doctrine that all people are equal and deserve equal rights and opportunities) and inclusion and engagement of communities and marginalized voices.
3. Socio-ecological equilibrium that seeks a harmonious balance between human—animal-environment interaction and acknowledging the importance of biodiversity, access to sufficient natural space and resources, and the intrinsic value of all living things within the ecosystem.
4. Stewardship and the responsibility of humans to change behaviour and adopt sustainable solutions that recognize the importance of animal welfare and the integrity of the whole ecosystem, thus securing the well-being of current and future generations.
5. Transdisciplinarity and multisectoral collaboration which includes all relevant disciplines, both modern and traditional forms of knowledge and a broad representative array of perspectives.

# Balancing Trade-Offs and Co-Benefits...Beyond GDP



**Impact assessment**



**Safeguards**



# Benefits of One Health

**TABLE 6.2:** Annual Expected Rate of Return on Investments in Prevention

| Reduction in expected disease outbreak impact | DISEASE OUTBREAKS BEING PREVENTED |                        |                       |                        |
|---|-----------------------------------|------------------------|-----------------------|------------------------|
|   | MILD PANDEMIC                     |                        | SEVERE PANDEMIC       |                        |
|   | Low preventive effort             | High preventive effort | Low preventive effort | High preventive effort |
| 20%   | 31%                               | 14%                    | 49%                   | 25%                    |
| 50%   | 65%                               | 44%                    | 88%                   | 57%                    |
| 100%  | 97%                               | 71%                    | 123%                  | 86%                    |

## Annual cost of prevention



Strengthen animal health, veterinary services  
US\$2.3 billion



Reduce deforestation, improve conservation  
US\$3.2-4.4 billion

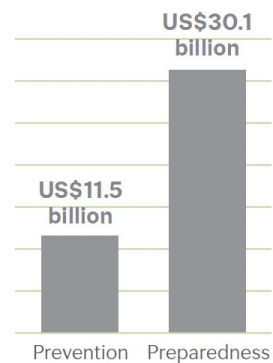


Improve on-farm biosecurity  
US\$5 billion



Improve urban planning  
Estimate unavailable

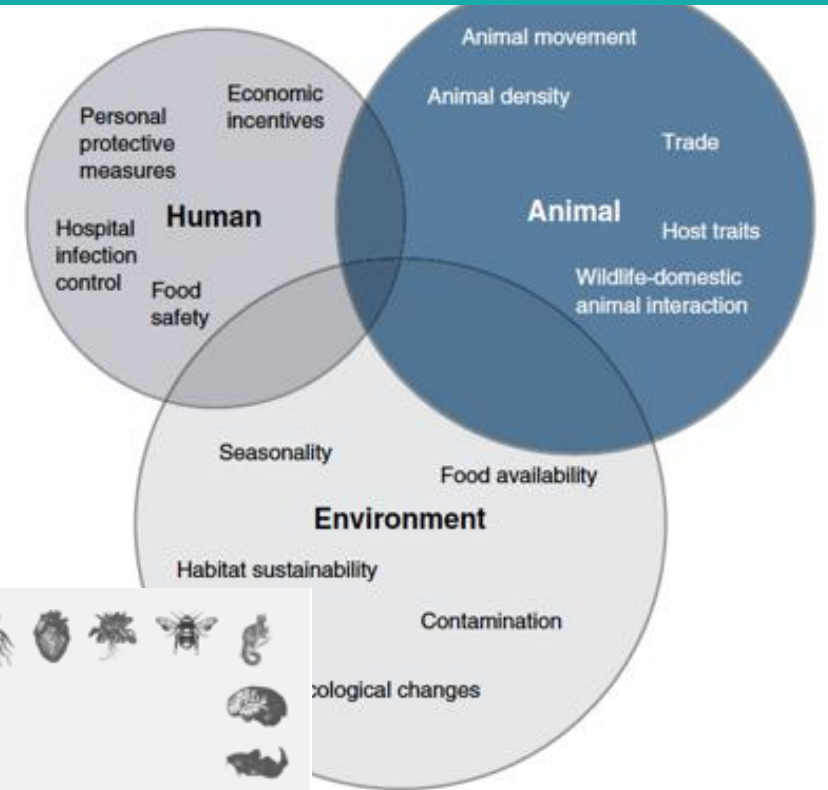
## Prevention compared to Preparedness



- Reduced duplication of costs
- Reduced disease burden and associated costs
- Broaden concepts of health to include ecosystem health and the assessment of ecological impacts
- Reduced environmental damages
- Increased co-benefits across sectors

# Context Matters!

- Not everyone working together all the time....
- But strong human, animal and environmental health systems are needed to determine relevant sectors for a given objective, disease, or situation
- Identify entry points, including for risk reduction, early detection, and response



# Invest in Systems!

## System Components to Reduce Disease Risk from Wildlife

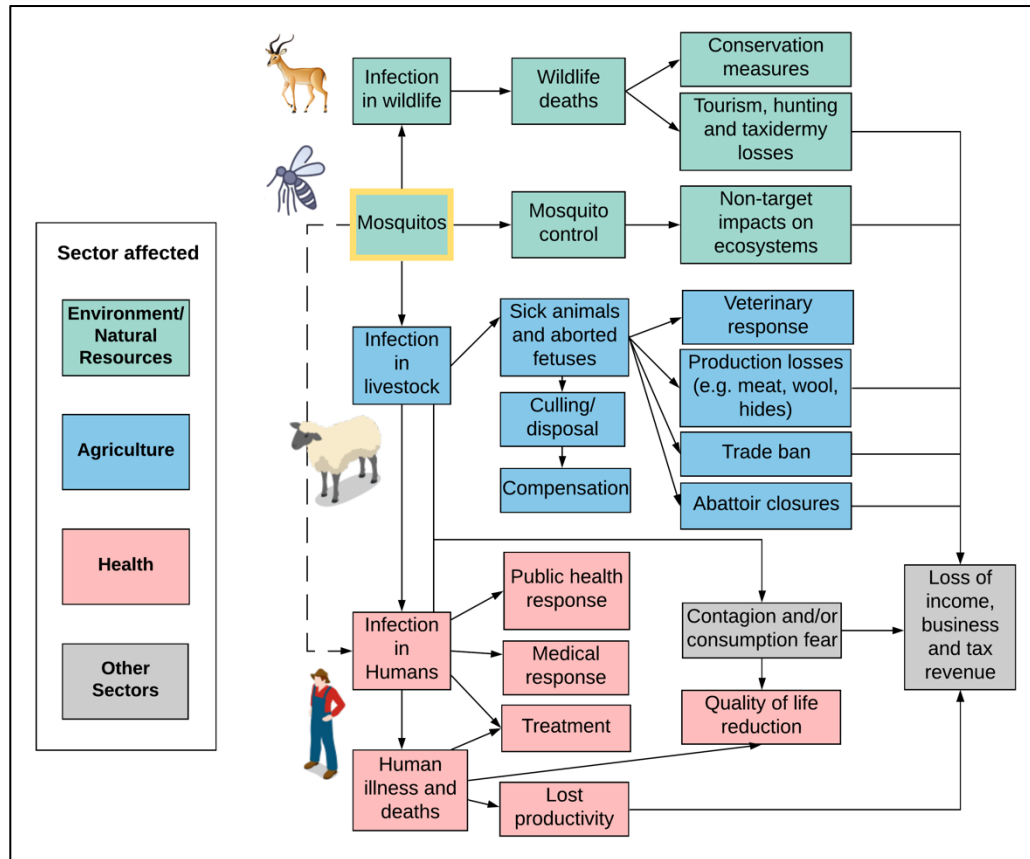


| Indicator  | Countries showing evidence of indicator*  |
|--|---|
| Policies (such as for livestock or land use development) account for disease risk from wildlife                          | China, Malaysia (for Nipah virus)   |
| Institutional mandate for managing wildlife disease/pathogen risk  | 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   |

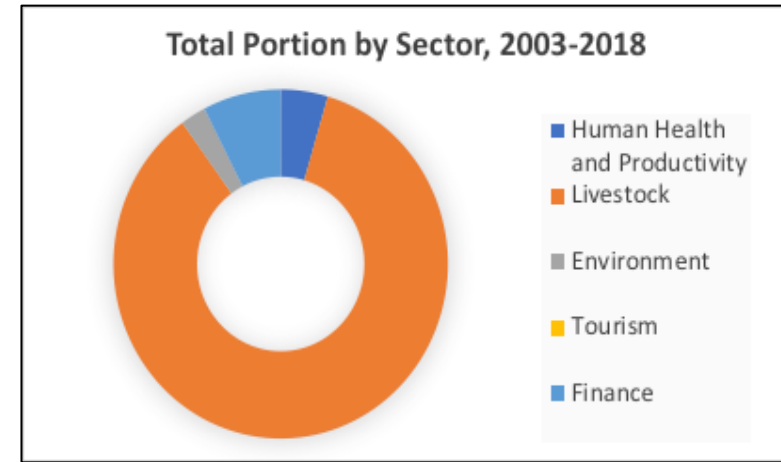
# Example: Rift Valley Fever



South Africa, 2003-2018



**Estimated cost**  
 R 1.76 billion – R 3.27b +  
 (USD \$120.6m– \$224.4m+)

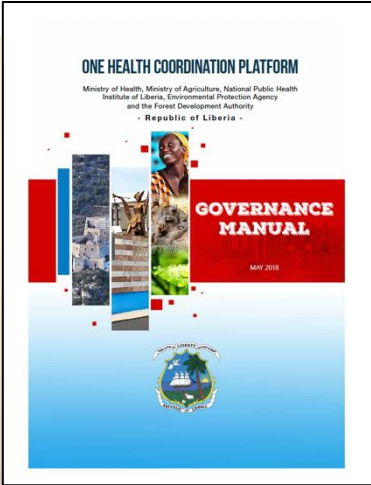


**Ratio of costs incurred for prevention : response**

Prevention ≤R 1.6      Response R 10.4



The project depicted is sponsored by the U.S. Department of Defense, Defense Threat Reduction Agency. The content of the information does not necessarily reflect the position or the policy of the federal government, and no official endorsement should be inferred.



# Conservation Works

PROMOTING BIODIVERSITY CONSERVATION AND ENHANCING ECONOMIC PROSPERITY IN LIBERIA THROUGH A ONE HEALTH APPROACH



Environmental

Human

**Increase One Health integration in research, policy, planning and practice**

Increase # PPAs legally recognized as PAs

Increase prosperity for communities around PAs

Improve management PPA and PA locally and nationally

Increase economic growth supporting conservation-compatible investment

Animal



# One Health Cost-Benefit Analysis: Protected Areas

Liberia Conservation Works Program



## Expected Benefits:

- Tourism revenues
- Ecosystem services: carbon sequestration and disease regulation
- Beekeeping and Sustainable Agriculture

## Expected Costs:

- Loss in artisanal mining and logging income
- Salaries to all conservation area staff, i.e. park rangers
- Costs of establishing the area, e.g. demarcation, buildings, road building
- Risk mitigation measures (not costed)

Assumptions: 0.3% current annual deforestation rate

|                          | 10 Year Model               | 30, 50, 100 Years ... |
|--------------------------|-----------------------------|-----------------------|
| Costs                    | \$87,675,366.70             | ...                   |
| Benefits                 | \$21,734,876,915.88         | ...                   |
| <b>Net Present Value</b> | <b>\$ 21,647,201,549.17</b> | ...                   |



# Invest in Communities!



A VSLA group in Kialay, Nimba County.

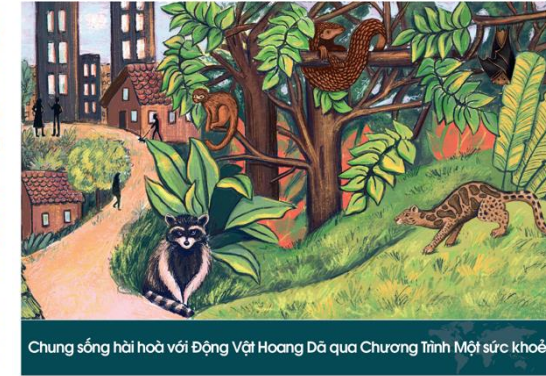
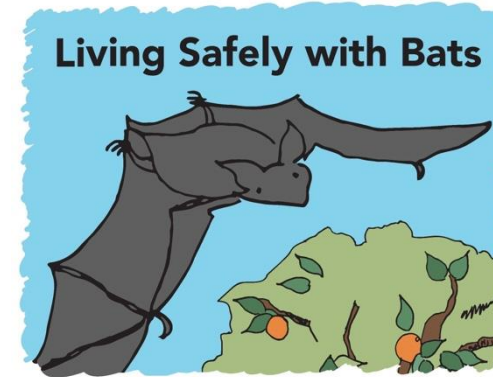


## Examples:

- Awareness about beekeeping opportunities and benefits
- Sustainable tourism training
- Species protection (various awareness materials available from Liberia conservation partners)
- Capacity building for communities to support species monitoring (community biomonitoring program)

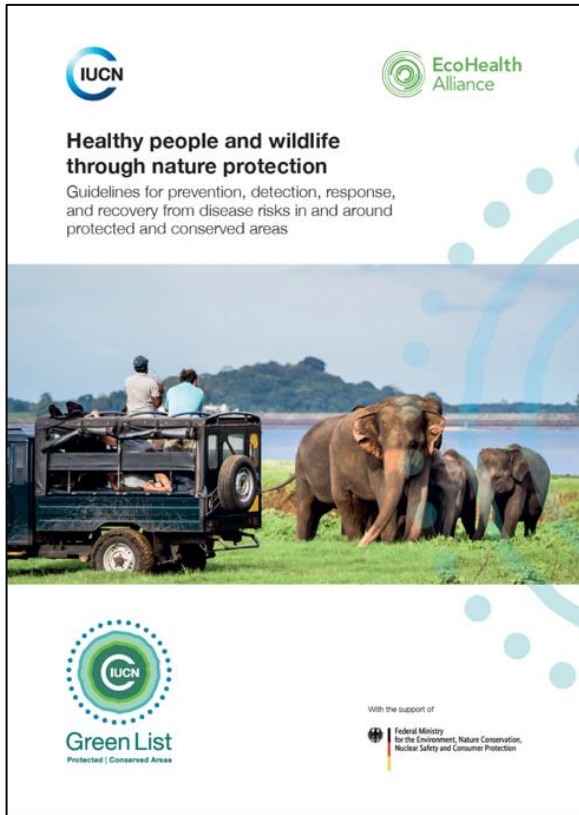


# Invest in Communities!



- Empower communities and industries to reduce risk and protect biodiversity and ecosystems
- Utilize social sciences, communication, and art

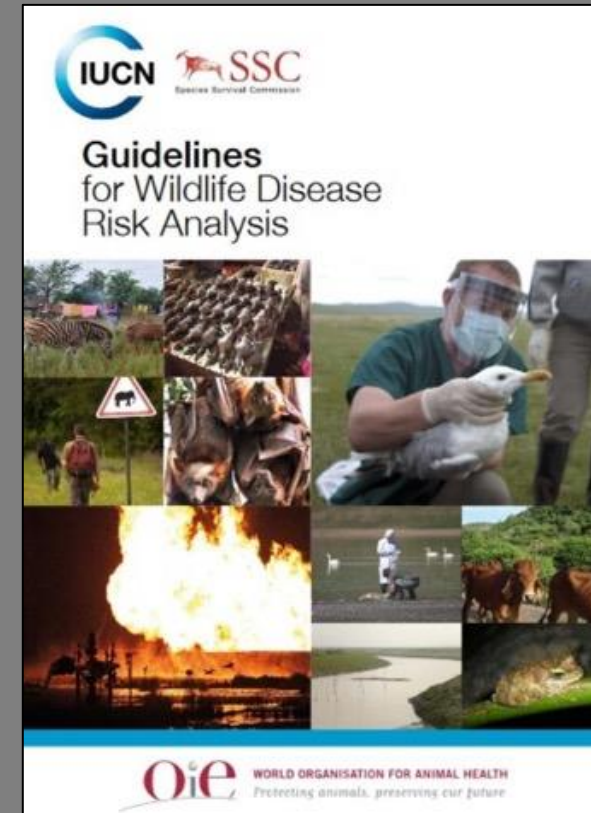
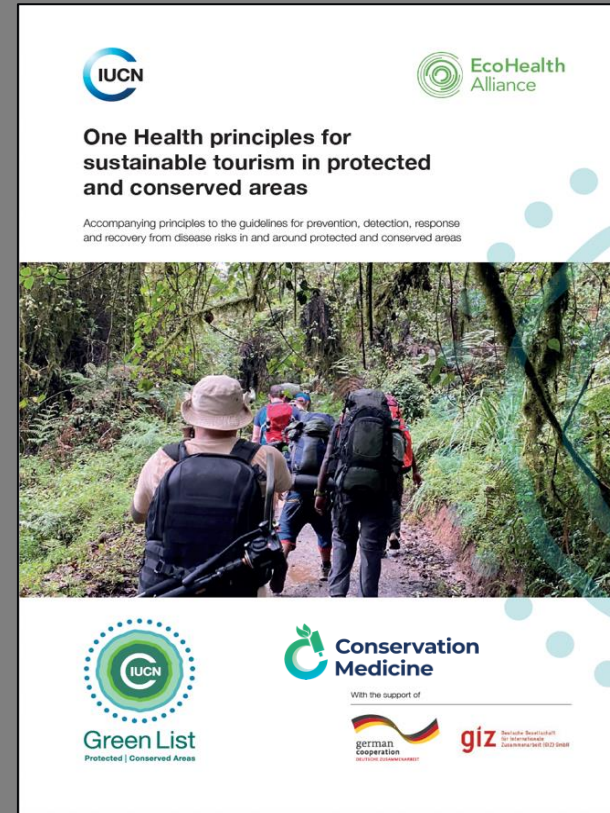
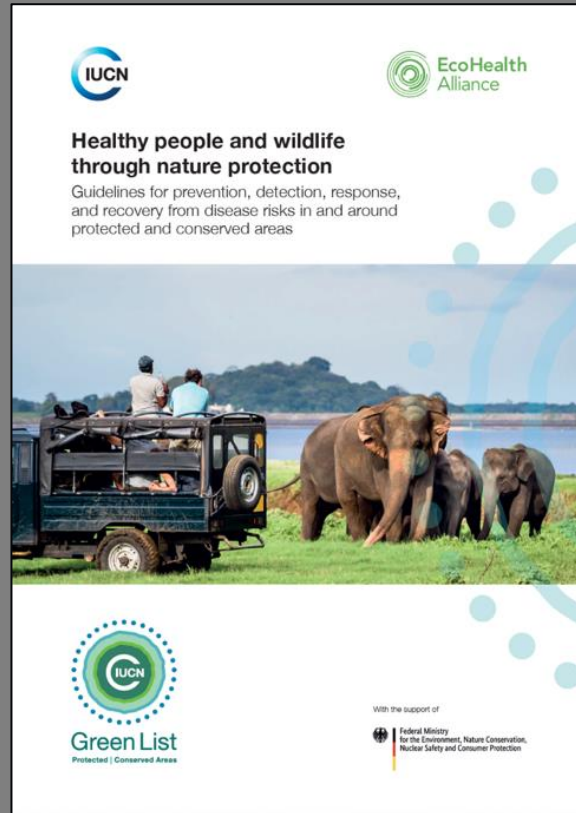
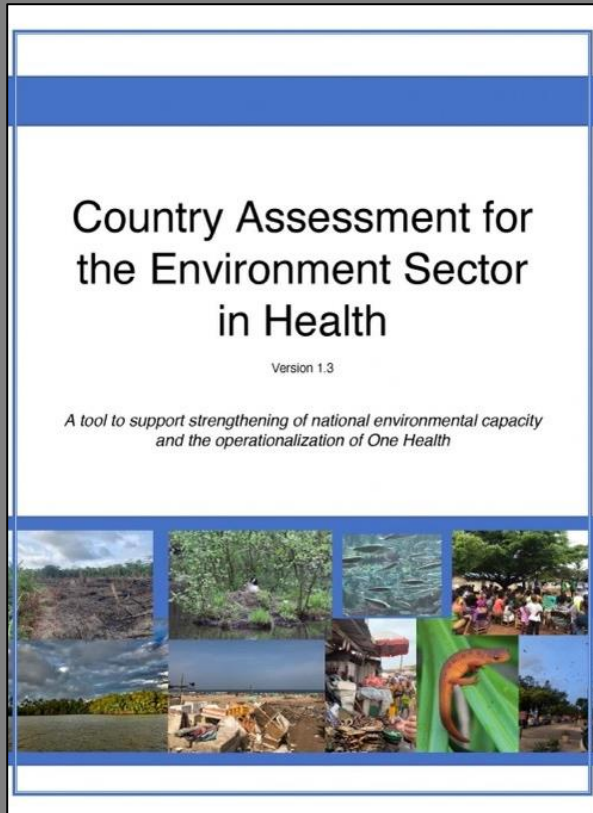
# Interfaces - Protected Areas



| Interface   | Examples   |
|---|--|
| <b>Tourism</b>                                      | <ul style="list-style-type: none"> <li>• Encroachment into caves</li> <li>• Wildlife selfies</li> </ul>  |
| <b>Communities living in/around conserved areas</b> | <ul style="list-style-type: none"> <li>• Agriculture (e.g., livestock rearing, crops)</li> <li>• Housing</li> <li>• Food acquisition and food preparation</li> </ul>   |
| <b>Natural resource extraction</b>                  | <ul style="list-style-type: none"> <li>• Commercial/concession-based logging, mining, and oil and gas extraction</li> <li>• Guano harvest</li> </ul>   |
| <b>Access and resource use</b>                      | <ul style="list-style-type: none"> <li>• Informal (e.g., artisanal) mining</li> <li>• Local clearing (e.g., for charcoal)</li> <li>• Subsistence and non-subsistence wildlife hunting and fishing</li> </ul> |
| <b>Research</b>                                     | <ul style="list-style-type: none"> <li>• Biological sampling and disease investigation</li> </ul>  |
| <b>Biodiversity management</b>                      | <ul style="list-style-type: none"> <li>• Reintroduction/translocation</li> <li>• Introduction and establishment of invasive alien species (and biological measures to control them)</li> </ul>               |

*Different contexts, including regional and community practices*

# Useful Tools (Examples)



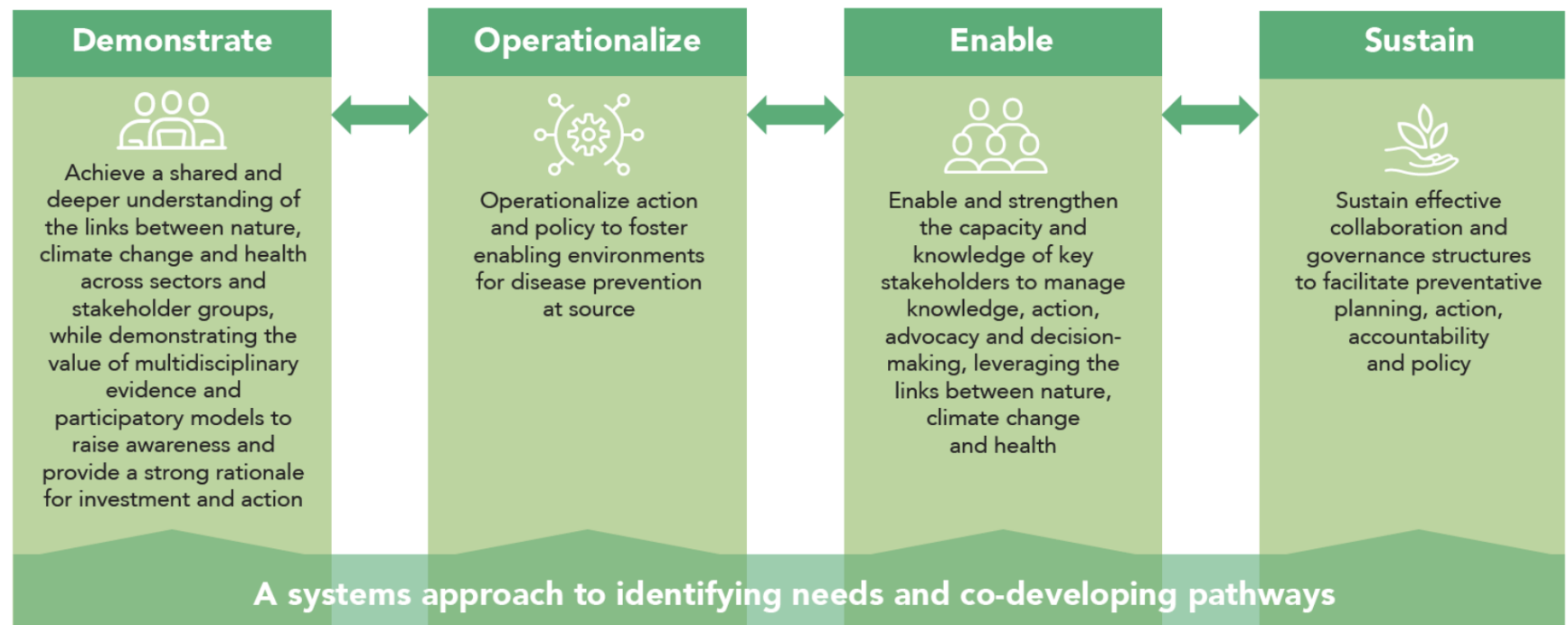
*Build on and improve them!!*

# Investing in Prevention

## Biodiversity for Pandemic Prevention



**Phase I partners:**  
Ecuador, Ghana, Mongolia,  
Rwanda, Vietnam, Zambia



Supported by:



based on a decision of  
the German Bundestag

# Thank you!



[Machalaba@ecohealthalliance.org](mailto:Machalaba@ecohealthalliance.org)