



Workshop Summary

Prioritizing Zoonotic Diseases for Multisectoral One Health Collaboration in Honduras



San Pedro Sula, Honduras
February, 2023





Photo 1. Forest and coffee plantations near La Tigra National Park.

DISCLAIMER

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

TABLE OF CONTENTS

Participating Organizations	1
Executive Summary	2
Introduction	4
Workshop Methods	5
Criteria and Questions Developed	6
List of Priority Zoonotic Diseases for Honduras	6
Next Steps And Action Plans for Honduras	8
One Health Coordination	8
Surveillance Capacity	8
Laboratory Capacity	9
Preparedness and Planning	9
Outbreak Response	10
Prevention and Control	10
Workforce	11
Research	11
Appendix A: Overview of the One Health Zoonotic Disease Prioritization Process	12
Appendix B: Participants of the One Health Zoonotic Disease Prioritization Workshop for Honduras	13
Appendix C: Final Results of the One Health Zoonotic Disease Prioritization Tool in Honduras	16
Appendix D: Criteria and Questions Utilized to Determine the Ranked Outcomes of the One Health Zoonotic Disease Prioritization Process in Honduras	17



Photo 2. Horses eating grass along roadside near Copán, Honduras.

PARTICIPATING ORGANIZATIONS

- Ministry of Health of Honduras (SESAL)
 - National Surveillance Laboratory
 - Health Surveillance Unit
 - Coordination of Zoonoses
 - General Directorate for Integrated Health Services Networks
 - Department of First Level of Care Services
 - Health regions: Choluteca, Lempira and Yoro
- National Service of Agri-Food Health and Safety (SENASA)
 - Technical Directorate of Animal Health
 - Department of Epidemiology
 - Honduran Institute of Veterinary Medical Research
 - National Poultry Program
- Ministry of Natural Resources and Environment (SERNA)
 - General Directorate of Biodiversity
 - Rosy Walther Species Conservation and Recovery Center
- International Regional Organization of Agricultural Health Representation Honduras (OIRSA)
 - Agricultural Protection Service (SEPA)
 - Animal Health Officer
- Forest Conservation Institute
 - Department of Wildlife
- Honduran Institute of Social Security San Pedro Sula Campus
- Foundation for Research and Conservation of Ecosystems and Biodiversity in Honduras
- National University of Agriculture (UNAG)
- National Autonomous University of Honduras (UNAH)
- San Pedro Sula Municipal Mayor's Office
- Council of Ministries of Health of Central America and the Dominican Republic (COMISCA)
- Inter-American Institute for Cooperation on Agriculture (IICA)
- Food and Agriculture Organization of the United Nations (FAO)
- Pan American Health Organization (PAHO)
- U.S. Centers for Disease Control and Prevention (CDC)
- United States Agency for International Development (USAID)



EXECUTIVE SUMMARY



Photo 3. Participants from the One Health Zoonotic Disease Prioritization Workshop in Honduras.

The purpose of the One Health Zoonotic Disease Prioritization Workshop for Honduras was to prioritize zoonotic diseases of greatest concern using a multisectoral, One Health approach, with equitable input from representatives from the human, animal (livestock and wildlife), and environmental health sectors, and other relevant partners.

The specific goals of the workshop were to utilize a multisectoral, One Health approach to:

1. Prioritize zoonotic diseases of greatest concern for Honduras.
2. Develop next steps and action plans to address the priority zoonotic diseases in collaboration with One Health partners.

During the workshop, representatives of the participating sectors developed a list of priority zoonotic diseases, defined criteria for prioritization, and determined questions and weights relevant to each criterion. Workshop participants identified a total of 7 priority zoonotic diseases, applying the mixed-methods prioritization process developed by the U.S. Centers for Disease Control and Prevention (CDC) (Appendix A).

After identifying the priority zoonotic diseases, participants established next steps and action plans to address the priority zoonotic diseases in collaboration with One Health partners.

Honduras's priority zoonotic diseases for multisectoral, One Health collaboration are (Table 1):

- Zoonotic influenza (swine and avian)
- Diarrhea caused by foodborne illness (salmonellosis, Escherichia coli Infection, listeriosis)
- Equine encephalitis (Eastern equine encephalitis, Western equine encephalitis, Venezuelan equine encephalitis)
- Yellow fever
- Rabies
- Brucellosis
- Zoonotic tuberculosis

This report describes the One Health Zoonotic Disease Prioritization process used to prioritize the zoonotic diseases of greatest concern to Honduras and the next steps and action plans to jointly address these zoonotic diseases utilizing a multisectoral, One Health approach including the human, animal, and environmental health sectors and other relevant partners.



Photo 4. Main square of Copán Ruins City.

INTRODUCTION

Zoonotic diseases are diseases that are spread between animals and people. Most known human infectious diseases and about three-quarters of newly emerging infections originate from animals. The most prevalent zoonotic diseases can impact society in three main ways:

- Threaten the health of animals resulting in illness, loss of productivity, and death.
- Threaten the livelihood, food security, and cultural traditions of the population dependent on wildlife and livestock as a major source of food and income.
- Threaten the health of people, with the ability to cause a significant number of illnesses and death, and significant social and economic losses.

In order to best address zoonotic disease threats, a multisectoral, One Health approach is needed. One Health means a collaborative, multisectoral, and transdisciplinary approach—working at the local, regional, national, and global levels—with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment.

Honduras held a One Health Zoonotic Disease Prioritization (OHZDP) Workshop February 14–16, 2023, at the Hilton Princess Hotel in San Pedro Sula. The purpose of the OHZDP Workshop for Honduras was to prioritize zoonotic diseases of greatest concern using a multisectoral, One Health approach, with equal input from representatives from the human, animal (livestock and wildlife), and environmental health sectors, and other relevant partners.



Photo 5. Scarlet Macaw (*Ara macao*) perched on a fence in the Copán Ruins.

The specific goals of the workshop were:

1. Prioritize zoonotic diseases of greatest concern for Honduras.
2. Develop next steps and action plans to address the priority zoonotic diseases in collaboration with One Health partners

To build capacity within the country to facilitate the OHZDP process in the future, national partners were trained by CDC on the OHZDP Process, integrating diverse sectors and relevant partners to address the following issues:

1. One Health coordination
2. Laboratory capacity
3. Surveillance capability
4. Outbreak response
5. Planning and preparation
6. Prevention and control
7. Workforce
8. Research

WORKSHOP METHODS

The One Health Zoonotic Disease Prioritization process uses a mixed-methods prioritization process developed by CDC's One Health Office (Appendix A). Workshop organizers began preparing and planning this workshop several months in advance. During the workshop, participants first reviewed the initial list of zoonotic diseases to focus on prioritization. A zoonotic disease was selected if it was known to spread between people and animals, and to be of concern to Honduras. Zoonotic diseases from the notifiable disease lists in humans and animals were included in the initial list. A list of 26 zoonotic diseases was included during the workshop, which is shown in Table 2 of Appendix C.

During the workshop, participants established five criteria to rank the 26 zoonotic diseases. Once the five criteria were established, a categorized question was formulated for each criterion through a group discussion; the questions were formulated to measure each criterion in the best possible way.

All questions had ordinal, binomial, and multinomial answers. The ordinal character is necessary for the process of assigning scores and each answer option was given a score, which was determined by the participants. The voting members then prioritized their preferences on the relative importance of each criterion.

A facilitator then entered each of the voting members' individual rankings into the One Health Zoonotic Disease Prioritization tool, and a group weighting was calculated for each criterion.

Facilitators and participants answered each question for each zoonotic disease using data that was identified through extensive research of publications, as well as information from the World Health Organization, World Organisation for Animal Health, PROMED and other relevant websites. Data were collected on transmission, severity, pandemic and epidemic potential, economic impact, prevention and control, and environmental impact for each of the zoonotic diseases. If information on a particular zoonotic disease was not available for Honduras, data from the region or globally were used. These references were compiled and shared with all workshop participants.

After scoring all zoonotic diseases, decision tree analysis was used to develop the ranked zoonotic disease list. Each weighted criterion was applied across each question's answers for every zoonotic disease. The scores for all five questions for each zoonotic disease were summed. The largest raw score was then normalized giving that zoonotic disease a normalized score of 1 (Appendix C).

The zoonotic diseases, with their raw and normalized scores, were presented to the participants for discussion. Workshop participants then used the ranked OHZDP list to discuss and decide on a final priority list of seven zoonotic diseases (Table 1). After deciding on the final priority zoonotic disease list, participants developed next steps and action plans to address the priority zoonotic diseases.



Photo 6. Panamanian white-faced capuchin (*Cebus imitator*) in a park in Roatán, Honduras.

CRITERIA AND QUESTIONS DEVELOPED

The criteria for ranking zoonotic diseases selected by voting members in Honduras are listed in order of importance. The following describes how the questions assessed the criteria (Appendix D). Refer to Appendix D to review all questions and answer options

Rank	Criteria	Weight	Questions
1	Laboratory diagnostic capacity	0.33	Is there diagnostic capacity installed at the national level for all sectors (human, animal)?
2	Intervention (prevention and control)	0.21	Are there prevention and control mechanisms for this zoonosis?
3	Disease severity and potential for bioterrorism	0.20	Is the disease present (morbidity: incidence or prevalence), with the potential presence of bioterrorism in the human and animal population?
4	Social, economic, and environmental impact	0.16	Does this zoonotic disease have an impact on the labor force or the agricultural production chain or the alteration of ecosystems?
5	Multisectoral One Health Collaboration	0.11	Is data on cases of this disease shared between sectors (human health, animal health and environment)?

LIST OF PRIORITY ZONOTIC DISEASES FOR HONDURAS

The 7 priority zoonotic diseases for multisectoral, One Health collaboration for Honduras are (Table 1):

- Zoonotic influenza (swine and avian)
- Diarrhea caused by foodborne illness (salmonellosis, *E. coli* infection, listeriosis)
- Equine Encephalitis (Eastern Equine Encephalitis, Western Equine Encephalitis, Venezuelan Equine Encephalitis)
- Yellow fever
- Rabies
- Brucellosis
- Zoonotic tuberculosis



Photo 7. Farmers working in fields in Honduras.



Photo 8. A boat on the paradise beach Cocalito in Punta de Sal, Tela, Honduras.

NEXT STEPS AND ACTION PLANS FOR HONDURAS

After finalizing the list of prioritized zoonotic diseases, workshop participants discussed next steps and action plans to address the diseases through the One Health approach. Below is a summary of the recommendations organized by topic:

One Health Coordination

Objective: Creation of an intersectoral committee.

Next Steps	Indicator	Responsible Sector
Establishment of a cooperation agreement (Strengthen communication, collaboration and pertinent actions in each case in an inter-institutional manner).	Signed agreement	SESAL, SAG, and DIBIO & Department of Wildlife/ Institute of Forest Conservation of San Pedro Sula (ICF)
Inter-institutional cooperation agreements.	Signing of agreement (at least two)	SESAL, SAG, and DIBIO & Department of Wildlife/ ICF
Progress Review Date	June 2024	

Surveillance Capacity

Objective: Integrate the different epidemiological surveillance systems from human, animal and environmental health sectors.

Next Steps	Indicator	Responsible Sector
Formation of an intersectoral epidemiological surveillance committee.	Committee made up of the 3 sectors involved	SESAL, SENASA, SERNA and ICF
Conducts situational diagnosis of epidemiological surveillance in each of the sectors for the 7 priority zoonotic diseases.	Written report on existing epidemiological surveillance processes through SWOT analysis	SESAL, SENASA, SERNA and ICF
Update of epidemiological surveillance guidelines that incorporates a multisectoral approach.	Number of unified guidelines for the total of the 7 priority zoonotic diseases	SESAL, SENASA, SERNA and ICF
Preparation of a work plan for each of the 7 priority zoonotic diseases.	Work plan developed	SESAL, SENASA, SERNA and ICF
Progress Review Date	June 2023: formation of surveillance committee, identification of key surveillance actors, progress on situational diagnosis	

Laboratory Capacity

Objective: Strengthen and implement technical capacities in the diagnosis of prioritized zoonotic diseases.

Next Steps	Indicator	Responsible Sector
Review of the SOPs of the techniques to be strengthened or implemented in a comprehensive manner by the sectors (Human, Animal and Environmental).	Number of SOPs reviewed by each sector in regard to the priority zoonotic diseases	SESAL, SENASA, SERNA and ICF
Formation of the technical committee between the 3 sectors, academia, and international organizations.	Formed technical committee Facilitators will convene the technical committee's first meeting	SESAL, SENASA, SERNA and ICF Academy International Organizations
Preparation of the joint work plan of all sectors.	Work plan prepared	SESAL, SENASA, SERNA and ICF
Progress Review Date	Tentative date: March 2024	

Preparedness and Planning

Objective: Develop strategies for surveillance and emergency response.

Next Steps	Indicator	Responsible Sector
Review of existing plans by institution.	Number of plans evaluated	SESAL, SAG, DIBIO and Department of Wildlife/ICF
Preparation of plans with an intersectoral approach.	Number of plans drafted	SESAL, SAG, DIBIO and Department of Wildlife/ICF
Dissemination and training of intersectoral plans.	Number of meetings held	SESAL, SAG, DIBIO and Department of Wildlife/ICF
Evaluation of emergency plans.	Number of emergency plans evaluated	SESAL, SAG, DIBIO and Department of Wildlife/ICF
Progress Review Date	August 2023	

Outbreak Response

Objective: Establish the action routes of the different actors to define work methodologies according to etiological agent for different populations.

Next Steps	Indicator	Responsible Sector
Definition of working groups members	Number of people per sector for the design of the multisectoral response plan to detected outbreaks (Absolute number)	SESAL, SENASA, SERNA and ICF
Definition of actors' roles by sector	Percentage of integration of the roles of the actors per sector for the plan design.	SESAL, SENASA, SERNA and ICF
Development of multisectoral response plans to outbreaks and their dissemination	Percentage of multisectoral response plans adequate for viral, bacterial, and foodborne diseases	SESAL, SENASA, SERNA and ICF
Conduct simulations of multisectoral outbreak response plans	Number of simulation practices carried out (min. 3)	SESAL, SENASA, SERNA and ICF
Progress Review Date	Probable meeting date to consolidate work plans: Viral diseases: March 24, 2023 (follow-up April 28). Bacterial diseases: May 26 (June 30) Foodborne diseases: July 28 (August 25).	

Prevention and Control

Objective: Design strategic prevention and control plans to address outbreaks.

Next Steps	Indicator	Responsible Sector
Training plan for key stakeholders trainers in prevention and control of outbreaks according to the viral, bacterial, and foodborne diseases.	Number of plans	SESAL, SENASA, SERNA and ICF
Establish the supplies and equipment needs for notification and early diagnosis for the multisectoral approach.	Number of supplies and equipment defined	SESAL, SENASA, SERNA and ICF
Establishment of multilingual communication and education plans for the general population.	Number of plans defined by means of communication to be used	SESAL, SENASA, SERNA and ICF
Progress Review Date	Probable date of meeting to consolidate work plans: Viral diseases: March 24, 2023 (follow-up April 28). Bacterial diseases: May 26 (30 June) Foodborne diseases: July 28 (August 25).	

Workforce

Objective: Determine the existence of trained human resources on prioritized zoonotic diseases in the three sectors involved.

Next Steps	Indicator	Responsible Sector
Identify the number of trained human resources in each sector by zoonotic disease.	Number of people trained/ total number of people involved in the work Diagnostic report of the capabilities of the identified human resources	SESAL, SENASA, SERNA and ICF
Build a capacity building plan.	Capacity building plan developed	SESAL, SENASA, SERNA and ICF
Progress Review Date	In 2 months List of human resources involved in each program, build a capabilities checklist.	

Research

Objective: Contribute to the development of research with a One Health approach in priority zoonotic diseases.

Next Steps	Indicator	Responsible Sector
Formation of the technical committee between the 3 sectors, academia, and international organizations.	Technical committee formed	SESAL, SENASA, SERNA, Academia, International Organizations
Definition of the research guidelines in One Health for the priority zoonotic diseases.	List or menu of the research guidelines	SESAL, SENASA, SERNA, Academia, International Organizations
Progress Review Date	Tentative date: April 2024	

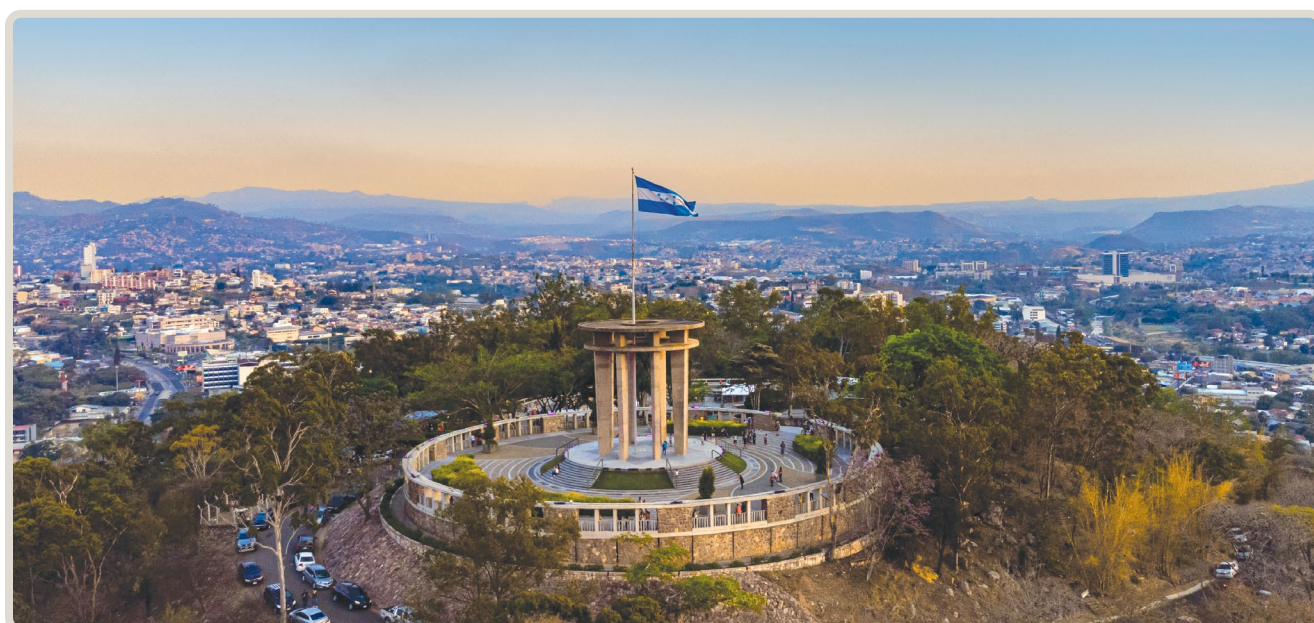
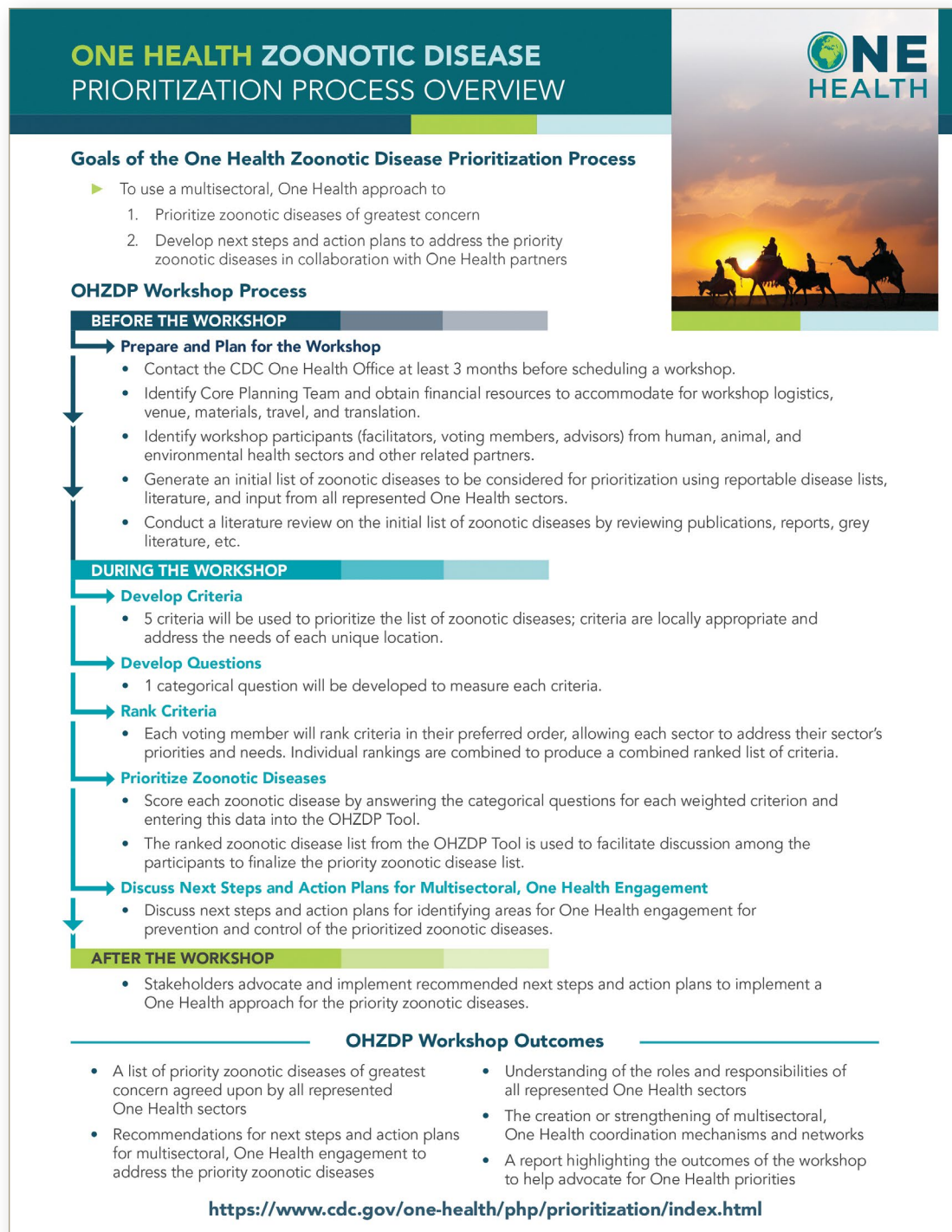


Photo 9. Aerial view of Tegucigalpa with Honduras' National Flag from Cerro Juana Lainez.

APPENDIX A: Overview of the One Health Zoonotic Disease Prioritization Process

U.S. Centers for Disease Control and Prevention: Overview of the One Health Zoonotic Disease Prioritization Workshop <https://www.cdc.gov/one-health/php/prioritization/index.html>



APPENDIX B: Participants of the One Health Zoonotic Disease Prioritization Workshop for Honduras

Voting Members

Name	Organization	Title/Position
Dr. Lorenzo Pavón	Health Surveillance Unit/SESAL	Head of Health Surveillance Unit
Dra. Justa Urbina	First level of care/SESAL	Head of the First Level of Care Department
Dra. Mitzi Castro Paz	SESAL Surveillance Laboratory	Coordinator of the National Surveillance Laboratory
Dra. Andrea Córdova	Honduran Social Security Institute San Pedro Sula	Head of S.P.S. Epidemiology Department
Dr. Rafael Enrique Rodríguez Alvarado	National Service of Agri-Food Health and Safety	Technical Director of Animal Health
Dra. Diana Lucia Sevilla Kleen	National Service of Agri-Food Health and Safety	Director of the Honduran Institute of Veterinary Medical Research
Dr. Luis Alberto Espinoza Rodezno	National Service of Agri-Food Health and Safety	Veterinarian Delegated by the SENASA Epidemiology Department
Dr. Marco Antonio Baquedano Álvarez	National Service of Agri-Food Health and Safety	National Poultry Program Coordinator
Lic. Sandra Sánchez Zelaya	Forest Conservation Institute-ICF	Biologist of the Northwest Region-ICF—San Pedro Sula
Dra. Yoselin Bonilla	Rosy Walther Species Conservation and Recovery Center	Rosy Walther Microbiology Center
Lic. Marlenia Acosta	Department of Wildlife-Forest Conservation Institute	Wildlife Department-ICF
Ing. Norlan Hernández	SEPA-OIRSA- Agricultural Protection Service, International Regional Body for Animal and Plant Health	SEPA Manager

Advisors

Name	Organization	Title/Position
Dra. Rosa Elena Mejía	PAHO	PAHO Consultant
Dr. Edgar Bailey	CDC-Central America Regional Office	Epidemiologist Regional Office CDC
Dra. Lourdes Medina	IICA	Specialist in agricultural health, food safety, and quality
Dr. David Castellanos	USAID	USAID Consultant
Dr. Guillermo Cruz	OIRSA	Animal Health Officer, Honduras
Dr. Rubén Ramírez Aquino	UNAG	Coordinator of the UNAG Veterinary Medicine Career
Ing. Marlon Martínez Medina	FAO	Agricultural Production Systems Supervisor
Dr. Wilfredo Sosa	UNAH-Master's Degree in Infectious and Zoonotic Diseases (MEIZ)	MEIZ Coordinator of Research and Linkage
Dra. Edith Rodríguez	SE-COMISCA	Field Epidemiology Training Program (FETP)/ SE-COMISCA Consultant

Name	Organization	Title/Position
Lic. Alex Vallejo	School of Biology/San Pedro Sula	Coordinator of the Biology career UNAH—Sula Valley
Lic. David Mejía	INCEBIOH-Foundation for Research and Conservation of Ecosystems and Biodiversity	Director INCEBIOH
Ing. Karol Xiomara Martínez	Municipal Mayor's Office of San Pedro Sula	Environmental management technician of the municipality of San Pedro Sula
Lic. Carlos Muñoz	SERNA—San Pedro Sula Regional Office	SERNA Regional Coordinator
Dra. Helen Estefani Martínez	UNAG	Professor of epidemiology at the Faculty of Veterinary Medicine and Zootechnics
Lic. Karhen Rodriguez	SERNA—San Pedro Sula	Environment Analyst
Dra. Jessica Sheleby E	UNAG	Lecturer at the Faculty of Veterinary Medicine and Animal Science

Observers

Name	Organization	Title/Position
Dr. David Morán	Center for Health Studies—University of Guatemala Valley	Veterinarian
Dr. Danilo Álvarez	Center for Health Studies—University of Guatemala Valley	Director of Zoonosis Program

Trained In-country Facilitators

Name	Organization	Title/Position
Dr. María Mercedes Rueda Henríquez	UNAH	Academic Coordinator School of Microbiology
Dra. Suyapa Domínguez	SESAL	Head of Health Surveillance Unit, Yoro Health Region
Dr. Douglas Edgardo Avelar Aguilar	SESAL	Head of the Health Surveillance Unit, Choluteca Health Region
Dr. Josué Franklin Gómez Lémuz	SENASA	Head of Epidemiology Department
Lic. Francisco José Aceituno Chávez	DiBio SERNA	Environmental Analyst
Dr. Carlos Edgardo Zúniga Mazier	SESAL	Head of Health Surveillance Unit, Lempira Health Region
Dra. Reina Teresa Velásquez	SESAL	Zoonosis Coordinator
Lic. Seneyda Marina Cruz Castañeda	SESAL	Integrated Health Services Networks Technician
Dr. Roque Humberto López Méndez	SESAL	Head of Bacteriology Laboratory
Dr. Gabriela Marina Mejía	SENASA	Veterinarian of the epidemiology department at SENASA
Dra. Kattia Michelle Agüero Alonzo	SENASA	Honduran Institute of Veterinary Medical Research Technical Coordinator
Dr. José Mauricio Díaz	SESAL	Health Surveillance Unit Zoonosis Technician

External facilitators or other key staff members

Name	Organization	Title/Position
Grace Goryoka	CDC, One Health Office	Public Health Advisor
Dr. Italo B. Zecca	CDC, One Health Office	Epidemiologist
Amihan Flores Crisostomo	CDC, One Health Office	Public Health Institute/CDC Global Health Fellow
Mwohania Taylor	CDC, One Health Office	Public Health Institute/CDC Global Health Fellow
José Carlos Monzón	CDC, Central America	Epidemiologist
Rafael Chacón	CDC, Central America	Epidemiologist

Logistics Organizers

Name	Organization	Title/Position
Eva Joseph	Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET)	Program Coordinator
Natalia Rezk	Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET)	Program Coordinator



Photo 10. Farm animals on a homestead in Moskitia, Honduras.

APPENDIX C: Final Results of the One Health Zoonotic Disease Prioritization Tool in Honduras

Rank#	Zoonotic Disease Name	Etiologic Agent	Gross Final Score	Standardised Final Ranking
1	Avian Influenza	Avian influenza virus	1.113	1.000
2	Brucellosis	<i>Brucella abortus</i>	1.059	0.952
3	Toxoplasmosis	<i>Toxoplasma gondii</i>	0.985	0.885
4	<i>E. coli</i> Infection	<i>E. coli</i>	0.984	0.885
5	Giardiasis	<i>Giardia intestinalis</i>	0.984	0.885
6	Yellow fever	Yellow fever virus	0.971	0.872
7	Teniasis/Cysticercosis	<i>Taenia solium</i>	0.961	0.864
8	Leishmaniasis	<i>Leishmania spp</i>	0.881	0.792
9	Salmonellosis	<i>Salmonella spp</i>	0.857	0.770
10	Swine Influenza	Swine Influenza Virus	0.857	0.770
11	Leprosy	<i>Mycobacterium leprae</i>	0.828	0.744
12	Listeriosis	<i>Listeria monocytogenes</i> and <i>Listeria inovanii</i>	0.828	0.744
13	Babesiosis	<i>Babesia spp</i>	0.822	0.739
14	Eastern Equine Encephalitis	Eastern Equine Encephalitis Virus	0.807	0.725
15	Venezuelan Equine Encephalitis Equine	Venezuelan Equine Encephalitis Virus	0.807	0.725
16	Rabies	Rabies virus	0.801	0.720
17	Leptospirosis	<i>Leptospira interrogans</i>	0.777	0.698
18	Herpes Virus B	Virus herpes B	0.768	0.690
19	Cryptosporidiosis	<i>Cryptosporidium spp</i>	0.768	0.690
20	Cryptococcosis	<i>Cryptococcus neoformans</i>	0.768	0.690
21	Histoplasmosis	<i>Histoplasma capsulatum</i>	0.768	0.690
22	Chagas	<i>Trypanosoma cruzi</i>	0.768	0.690
23	Zoonotic Tuberculosis	<i>Mycobacterium bovis</i>	0.747	0.672
24	Ehrlichiosis	<i>Ehrlichia spp</i>	0.718	0.645
25	Fascioliasis	<i>Fasciola hepatica</i>	0.664	0.597
26	West Equine Encephalitis	West Equine Encephalitis Virus	0.659	0.592

APPENDIX D: Criteria and Questions Utilized to Determine the Ranked Outcomes of the One Health Zoonotic Disease Prioritization Process in Honduras

1. Social, economic, and environmental impact (Criterion Weight = 0.16)

Question: Does this zoonotic disease have an impact on the labor force or the agricultural production chain or the alteration of ecosystems?

- **Workforce:** Decreased productivity
- **Agricultural production chain:** food security or trade restriction (WOAH) or animal depopulation.
- **Alteration of ecosystems:** loss of wildlife species

Answer:

- ☐ 3 of 3 factors (4)
- ☐ 2 of 3 factors (3)
- ☐ 1 of 3 factors (2)
- ☐ 0 of 3 factors (1)

2. Severity of disease and potential for bioterrorism (Criterion Weight = 0.20)

Question: Is there a presence of the disease (morbidity) with the potential presence of bioterrorism in the human and animal population?

- **Morbidity:** incidence or prevalence
 - **Severe:** morbidity greater than 10% in humans or animals
 - **Moderate:** morbidity between 5 and 10%
 - **Mild:** morbidity less than 5%

**Data from statistics and references from experts in the country.*

Answer:

- ☐ Yes, bioterrorism and is severe (5)
- ☐ Yes, bioterrorism and is moderate or mild (4)
- ☐ No bioterrorism and is severe (3)
- ☐ No bioterrorism and is moderate (2)
- ☐ No bioterrorism and is mild (1)

3. Availability of intervention (prevention and control) (Criterion Weight = 0.21)

Question: Are there prevention and control mechanisms in this zoonosis?

- Prevention: vaccinations in Honduras or epidemiological surveillance or mandatory notification or promotion and social communication or prophylaxis
- Control: availability of treatment or animal depopulation

Answer:

- ☐ None (3)
- ☐ There is some in human or animal health (2)
- ☐ Both in human and animal health (1)

4. Laboratory diagnostic capacity (Criterion Weight = 0.33)

Question: Is there installed diagnostic capacity at the national level for all sectors (human, animal)?

- Definition of installed diagnostic capacity: Whether it can give a diagnosis

Answer:

- ☐ Yes, both (3)
- ☐ Yes, only in one sector (2)
- ☐ None (1)

5. One Health Multisectoral Collaboration (Criterion Weight = 0.11)

Question: Is data on cases of this disease shared between sectors (human health, animal health and environment)?

- Informal: WhatsApp, verbal, personal call or mail
- Formal: institutional mail, official letter or bulletin

Answer:

- ☐ Formal, in 3 sectors (5)
- ☐ Formal, in 2 sectors (4)
- ☐ Informal, in 3 sectors (3)
- ☐ Informal, in 2 sectors (2)
- ☐ None (1)



Photo 11. A natural waterfall in the Cerro Azul Meámbar National Park (Panacam) in Yojoa, Honduras.

<http://www.cdc.gov/onehealth>