



Republic Of  
**Zambia**

NATIONAL  
**ONE HEALTH**  
**STRATEGIC PLAN**

**2022 - 2026**



One Health Strategic Plan 2022–2026

Copyright ©2022 Ministry of Health, Ministry of Fisheries and Livestock and Ministry of Green Economy and Environment

This publication was produced by Ministry of Health, Ministry of Fisheries and Livestock and Ministry of Green Economy and Environment

All rights reserved.

Design and Layout by Omar Ston Consulting



# Contents

## New

Contents .....	5
FOREWORD .....	9
ACKNOWLEDGEMENTS .....	11
1.0 Introduction .....	13
1.1 Country Profile .....	13
1.1.2 Geography .....	13
1.1.2 Administrative structure .....	14
1.1.3 Climate .....	14
1.1.4 Economic activities .....	14
1.2 Evolution of One Health Approach .....	15
1.2.1 Global Steps Toward One Health .....	15
1.3 Economics of One Health .....	16
2.0 Situational Analysis .....	18
2.1 General Situational Analysis .....	18
2.2 Zoonotic Disease Profiles .....	18
2.2.1 Burden of Zoonoses in Africa .....	18
2.2.2 Burden of Zoonoses in Zambia .....	19
2.2.3 Surveillance for Zoonotic Diseases in Zambia .....	19
2.2.4 Prioritisation of Zoonotic Diseases in Zambia .....	19
2.3 Antimicrobial Resistance .....	20
2.3.1 Capacity and structures to conduct surveillance of antimicrobial resistance .....	20
2.4 Environmental Health .....	21
2.5 Food Safety .....	22
2.5 International Health Regulations (IHR) 2005 .....	23
2.6 Strengths, Weaknesses, Opportunities and Threats Analysis for One Health Implementation in Zambia .....	29
2.6.1 Governance and Coordination .....	29
2.6.2 Surveillance .....	30
2.6.3 Preparedness and Response .....	30
2.6.4 Advocacy, Communication and Training .....	30
2.6.5. Research .....	31



<b>3.0 Organizational Functions</b>	<b>42</b>
<b>3.1 One Health Steering Committee</b>	<b>42</b>
<b>3.2. One Health Coordinating Committee (OHCC)</b>	<b>42</b>
<b>3.3. Technical Working Groups (TWG)</b>	<b>43</b>
<b>3.3.1. Governance and coordination</b>	<b>43</b>
<b>3.3.2. Surveillance TWG</b>	<b>43</b>
<b>3.3.3. Preparedness and Response TWG</b>	<b>44</b>
<b>3.3.4. Advocacy, Communication and Training</b>	<b>44</b>
<b>3.3.5. Research TWG</b>	<b>44</b>
<b>4.0 Five-Year Strategic Direction</b>	<b>45</b>
<b>4.1 Vision</b>	<b>45</b>
<b>4.2 Mission</b>	<b>45</b>
<b>4.3 Thematic Goals</b>	<b>45</b>
<b>4.4 Core Values and Principles</b>	<b>45</b>
<b>4.5 Objectives, Strategies and Activities</b>	<b>45</b>
<b>5. Monitoring and evaluation (M&amp;E) framework</b>	<b>54</b>
<b>5.1 Two-Year Implementation Plan</b>	<b>73</b>
<b>List of Contributors</b>	<b>87</b>





# FOREWORD

The world is facing unprecedented, interconnected threats to the health of people, animals, and the environment; addressing these threats requires cross-sectoral, systems-wide approaches. This is encapsulated in the One Health concept which recognizes the interconnection between people, animals, plants, and their shared environment. One Health is a collaborative, multidisciplinary, and multisectoral approach that can address urgent, ongoing, or potential health threats at the human-animal-environment interface at subnational, national, global, and regional levels. This approach includes ensuring balance and equity among all the relevant sectors and disciplines.

In today's highly connected world, a disease can be transported from an isolated village to any major city in as little as 24 hours. Zoonoses – diseases that move between animals and people – and other health threats within the human-animal-ecosystem interface pose ongoing and increasing risks to public health and global health security. Approximately 73 percent of emerging pathogens originate from animal hosts, the majority being wild animals.

The COVID-19 pandemic and its origins as a zoonotic pathogen is a particularly pertinent example of this interconnectedness and only came to confirm the correctness of the One Health approach to Health policy. However, One Health is concerned about many of the other major threats of our time such as climate change and disease emergence, anti-microbial resistance, ecosystem destruction with loss of biodiversity, and the fragility of food and feed systems. In a globalized world, it is imperative that all nations and societies better manage One Health.

Zambia's unique location as a land-linked country also places it at a higher risk of being a hotspot for emerging and re-emerging infectious disease threats in the region arising from international travel. Over the last decade, the surrounding regions have experienced animal-originating outbreaks of Ebola, Marburg haemorrhagic fever, Rift valley fever, Crimean Congo haemorrhagic fever and yellow fever. These outbreaks have resulted in significant illness, death and social disruption in the affected communities and beyond. In addition to the dangers of well-known zoonotic diseases like Rabies and Anthrax, more insidious threats lurk at the human-animal-ecosystem interface, with the growing resistance of microbes to antibiotics.

Threats like these cannot be addressed in a vacuum. The complex interactions that result in disease emergence require strong and consistent collaboration among all sectors responsible for Human health, Animal health and the Environment. It is against this backdrop that the ZNPHI as the institution mandated to coordinate One Health, in collaboration with other Ministries, Departments and Agencies has developed a five-year strategic plan and a one-year implementation plan – The National One Health Strategic Plan (OHSP) 2022 -2026 for Zambia. To validate this plan, the National Bridging Workshop (NBW) was held in Livingstone from 19 – 21 October 2022 using a One Health approach. This OHSP plan was jointly developed with the Department of Veterinary Services in the Ministry of Fisheries and Livestock, the Ministry of Health, the Ministry of Green Economy and Environment, the Ministry of Local Government and Rural Development, Academia, development partners, the private sector as well as non-governmental organisations.

This Plan addresses some of the gaps identified in the Joint External Evaluation of the IHR core capacities. In addition, it reflects the shared commitment to enhance multi-sectoral collaborations in addressing public health events at the human-animal-environment interphase. If successfully implemented, the plan will institutionalise One Health, address zoonotic diseases, enhance food safety and security and keep Zambia healthier and safer. We call upon you all to support the implementation of the One Health strategy.



Prof. Lackson Kasonka

**Permanent Secretary - TS**  
**Ministry of Health**



Dr. Anna Songolo

**Permanent Secretary**  
**Ministry of Fisheries and Livestock**



Mr. John Msimuko

**Permanent Secretary**  
**Ministry of Green Economy and Environment**

# ACKNOWLEDGEMENTS

The Zambia National Public Health Institute (ZNPHI) wishes to acknowledge the multisectoral team and the various line ministries that provided input in an All-of-Government approach towards the completion of the five-year National One Health Strategic Plan for Zambia.

This work would not have been completed without the support of the UN agencies and cooperating partners, led by the WHO country office as well as the technical support rendered by the UK Health Security Agency. Furthermore, I would like to appreciate the Zambia National Public Health Institute staff for their efforts and commitments towards the successful completion of this five-year strategic plan for the implementation of One Health in Zambia.

I also wish to acknowledge all supportive individuals and organisations that provided expert opinion, essential inputs and valuable comments on the initial drafts that preceded the final document. These include the Africa Centres for Disease Control and Prevention (ACDC), the US Centres for Disease Control and Prevention (US CDC), experts from the University of Zambia School of Veterinary Medicine (UNZAVET), Africa Centre of Excellence for Infectious Diseases of Humans and Animals (ACEIDHA) and other individuals not mentioned by name.

A full list of contributors to this plan is provided at the end of the document.



Prof. Roma Chilengi

**Director General, ZNPHI**  
**Zambia National Public Health Institute (ZNPHI)**



# 1.0 Introduction

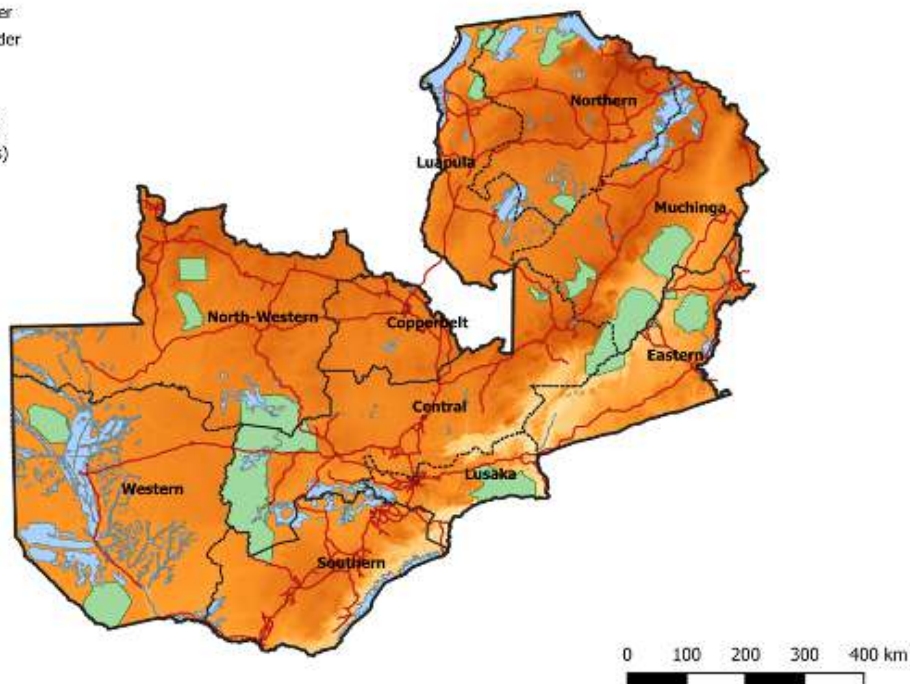
## 1.1 Country Profile

Zambia is a land-linked country situated in the south-central part of Africa, between latitudes 8° and 18° and longitudes 22° and 34°. The total surface area is 752, 618 square kilometres. Zambia shares borders with 8 countries; Angola, Botswana, Congo DRC, Namibia, Malawi, Mozambique, Tanzania and Zimbabwe (Fig1).

### ZAMBIA: PHYSICAL

#### LEGEND

- Country border
- Provincial border
- Major road
- Water body
- National park
- Elevation (meters)
  - 0 - 499
  - 500 - 999
  - 1000 - 1499
  - 1500 - 1999
  - Above 2000



**Fig 1: Map showing Zambia's neighbouring countries and its lakes, rivers, national parks, towns and cities**

### 1.1.2 Geography

Zambia's main landmass is a plateau that lies between 910m and 1,370m (3,000-4,500 ft.) above sea level. In the northeast, the Muchinga Mountains exceed 1,800 m (5,900 ft.) in height. Elevations below 610 m (2,000 ft.) are encountered in the valleys of the major river systems. The major rivers include; Zambezi, Kafue, Luapula and Luangwa. The major lakes include Tanganyika, Mweru, Bangweulu and Kariba.

## 1.1.2 Administrative structure

---

Zambia is divided into ten provinces, namely; Copperbelt, Central, Eastern, Luapula, Lusaka, Muchinga, Northern, North-western, Southern and Western. Each province is headed by a minister appointed by the Republican President. Provinces are further divided into districts. Currently, Zambia has a total number of 116 Districts.

## 1.1.3 Climate

---

Zambia experiences a sub-tropical climate. There are three main seasons: a hot and dry season (August to November), a rainy season (November to April) , and a cool dry season (May to Mid-August) [ref]. Climate change continues to have a negative impact on agriculture, food security, wildlife, safe water, energy and health in Zambia.

## 1.1.4 Economic activities

---

Zambia's annual real Gross Domestic Product (GDP) growth rate was favourable during the period 2006 to 2007, averaging at 8.7%, with the highest annual growth rate registered at 10.3% in 2010. Growth was mainly driven by the construction, transport, and mining sectors, spurred by increased investment in the mining sector.

Between 2011 and 2016, however, the economic growth rate slowed down and averaged 4.9%. This was driven by Information Communication and Technology (ICT), wholesale and retail trade, as well as the construction sector.

During the period 2017-2021, growth declined further with real growth rate averaging 1.4% largely due to unfavorable weather conditions which impacted the agricultural and energy sectors in the earlier years of the period. In 2020, economic growth contracted by 2.8%, registering the first recession since 1998. This was mainly due to the effect of disruptions in supply chains and containment measures associated with the COVID-19 pandemic on sectors such as tourism, construction, wholesale, retail trade and manufacturing. In 2021, real GDP growth recovered to 3.6% with agriculture, manufacturing, energy, wholesale and retail trade as well as the ICT sectors driving growth (8NDP,2022). Mining remains a dominant sector making Zambia a mono economy [ref].

The country has undertaken policy reforms aimed at creating an enabling economic environment, which enhances private-sector participation and ultimately achieves economic growth. Against the backdrop of these policy reforms, the country has achieved consistent positive gross domestic product (GDP) growth over the past decade.

## 1.2 Evolution of One Health Approach

### 1.2.1 Global Steps Toward One Health

---

One Health is an integrated, unifying approach to balance and optimize the health of people, animals and the environment. It is particularly important to prevent, predict, detect, and respond to global health threats such as the COVID-19 pandemic. The approach mobilizes multiple sectors, disciplines and communities at varying levels of society to work together. This way, new and better ideas are developed that address root causes and create long-term, sustainable solutions .

One Health is not new, but it has become more important in recent years. This is because many factors have changed interactions between people, animals, plants, and the environment.

Human populations are growing and expanding into new geographic areas. As a result, more people live in close contact with wild and domestic animals, both livestock and pets. Animals play an important role in our lives, whether for food, livelihoods, travel, sport, education, or companionship. Close contact with animals and their environments provides more opportunities for diseases to pass between animals and people. Furthermore, the earth has also experienced changes in climate and land use, such as deforestation and intensive farming practices. Disruptions in environmental conditions and habitats can provide new opportunities for diseases to pass to animals. The movement of people, animals, and animal products has increased from international travel and trade. As a result, diseases can spread quickly across borders and around the globe. These changes have led to the spread of existing or known (endemic) and new or emerging zoonotic diseases, which are diseases that can spread between animals and people. Every year, millions of people and animals around the world are affected by zoonotic diseases.

Successful public health interventions require the cooperation of human, animal, and environmental health partners. Professionals in human health (doctors, nurses, public health practitioners, epidemiologists), animal health (veterinarians, paraprofessionals, agricultural workers), environment (ecologists, wildlife experts), and other areas of expertise need to communicate, collaborate on, and coordinate activities. Other relevant players in a One Health approach could include law enforcement, policymakers, agriculture, communities, and even pet owners. No one person, organization, or sector can address issues at the animal-human-environment interface alone.

In April 2010, the three main international organisations charged with protecting public and animal health that is; the Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (WOAH) and the World Health Organization (WHO), jointly designed a long-term strategic approach to international collaboration, aimed at coordinating global activities to address health risks at the human-animal-environment interface. Numerous mechanisms have already been developed to aid cooperation at the technical level, but the tripartite accord recognises that: 'there is a need to strengthen animal and human health institutions', and that: 'protocols and standard. should be jointly developed' to achieve alignment and coherence of related global-standard setting activities and address gaps existing in the country's capacities.



On 17 March 2022, the four organizations – FAO, WOAH, UNEP and WHO signed a Memorandum of Understanding (MoU) for joint One Health works. The new Quadripartite MoU provides a legal and formal framework for the four organizations to tackle the challenges at the human, animal, plant and ecosystem interface using a more integrated and coordinated approach. This framework will also contribute to reinforce national and regional health systems and services.

The World Health Organization (WHO) works closely with the Food and Agriculture Organization of the United Nations (FAO), the World Organization for Animal Health (WOAH) and the United Nations Environmental Protection (UNEP) to promote multi-sectoral responses to food safety hazards, risks from zoonoses, environmental threats, and other public health threats at the human-animal–environment ecosystem interface and provide guidance on how to reduce these risks. On human and animal health, both the OIE and WHO have developed appropriate frameworks and tools related to their mandates. These frameworks and tools are aimed at supporting their Member States to build sustainable national and regional capacities and partnerships to ensure animal and public health security through preparedness planning, prevention, early detection and rapid response to emerging diseases and other animal and public health emergencies.

## 1.3 Economics of One Health

The impact of emerging and re-emerging infectious diseases and other public health events (PHEs) on public health is both clear and well documented, often well beyond the sphere of human health. The PHEs have significant negative impact on agricultural production, trade, and travel for the region directly affected and may extend further beyond man-made borders. It is this impact which creates a strong incentive for a whole-of-society approach to tackling disease threats.

Disease management is typically viewed as the responsibility of the health sector. Yet considering the wide economic impact of outbreaks and the multi-sectoral benefits of disease prevention is perhaps the best way to encourage nations to move away from a reactive approach to pandemics. Considering the economics of “One Health” may be a wise tool in convincing countries and communities of the benefits in moving toward improved risk assessment and management.

Global economic impacts of epidemics suggest high return on investment in prevention and one health capacity. Most recent outbreaks are zoonotic in nature and have resulted in high health impacts but also substantial economic costs locally, regionally and globally. A 2011 report by the The Organization for Economic Cooperation and Development (OECD) shows that pandemics are a prime global catastrophic threat—a finding that is consistent with a number of other assessments (OECD 2011). Further, the report indicated that potential losses resulting from a severe influenza pandemic, for instance, which may lead to 71 million human fatalities would be \$3 trillion, or 4.8 percent of the global GDP. In addition, tackling endemic zoonoses would reduce a major source of human suffering and economic losses that disproportionately affects many of the poorest households in developing countries. For instance, Echinococcosis, imposes a human and economic burden in developing countries that each year costs at least 1.5 million healthy life-years, as well as US\$2 billion in livestock losses. A typical episode may involve a pathogen that originates in wildlife, passes to livestock, and is then transmitted from livestock to humans. Exposure to the pathogen in animals could be followed by symptoms in animals. Then there is a rise of exposure in humans, who subsequently could develop symptoms, may seek treatment, and infect each other. If the disease reaches





the point of spreading among humans, the disease will have already done substantial damage. Moreover, the spread of the disease among humans at that point may be difficult to slow or reverse, and the cost of disease control will usually increase rapidly.

This pattern of progression is evident from the high and rising cost of controlling HIV/AIDS, which is also of zoonotic origin. Thus, effectiveness of zoonotic disease control requires early detection at the source of the disease in animals, an early and accurate diagnosis, and rapid disease control measures. Delays substantially reduce effectiveness. The more effective an approach is, the more lives it will save, and the higher the benefits in terms of avoided losses.

Authorities too often start looking for the disease in animals and undertake diagnostic and control efforts only after human cases and deaths have been observed. When disease surveillance and control take this form, humans essentially serve as a sentinel species—human death and illness act as indicators of disease in animals. Because surveillance, diagnosis, and control of zoonotic disease take place at the interface between animals and humans, systematic communication and substantial coordination between human, wildlife, and veterinary health services is an important practical necessity. And this communication and coordination also needs to extend to those services that monitor food safety. One Health is an approach to ensure that this critically important interdisciplinary collaboration occurs. This collaboration reduces the gaps between institutions and disciplines that can cause costly delays, and even failures, in disease detection and control.

# 2.0 Situational Analysis

## 2.1 General Situational Analysis

Current and future public health threats at the human-animal-environmental interface at country, regional and global level require transformational and collaborative approaches under the One Health umbrella. In analysing the current One Health situation in Zambia, this strategy focuses on four priority public health threats: zoonotic disease, antimicrobial resistance, environmental health and food safety. These threats have been identified as priorities due to the high negative impact they have shown on the Zambian national public health sector as well as the economy. Emerging and re-emerging zoonotic diseases have the potential for serious negative impacts on public health, economy (trade, tourism), food safety and food security, social impacts on vulnerable populations including refugees, and other related socioeconomic impacts.

Environmental health concerns linked to public health events arising from potential biosecurity threats of highest global concern are present in Zambia, such as Anthrax, Botulism, Plague and Viral hemorrhagic fevers (VHFs). These biological agents and/or their products can be manipulated and intentionally used to infect humans, animals (domestic or wildlife) and plants in massive proportions. Furthermore, Antimicrobial Resistance (AMR) threatens Zambia's achievement of the Sustainable Development Goals. Zambia has already put in place an AMR National Action Plan; this plan adopts a One Health approach to AMR, and will be coordinated through the Zambia National Public Health Institute (ZNPPI).

It is therefore a priority to integrate effective coordination and implementation of AMR, Zoonoses, food safety, and environmental activities into a One Health Strategic Plan.

## 2.2 Zoonotic Disease Profiles

### 2.2.1 Burden of Zoonoses in Africa

---

Over recent years, public awareness of the risks posed to human health by various diseases of animal origin has been greatly increased by the emergence of new diseases such as the Corona virus Disease 2019 (COVID 19) which pose a worldwide threat to both human and animal health. Unfortunately, most African countries have limited capacity to effectively deal with these emerging and re-emerging zoonotic diseases. Further, the situation is compounded by inadequate surveillance systems and lack of robust scientific evidence-based solutions. Due to these limitations, the true burden of zoonotic diseases in Africa is always underestimated. Scientific evidence has shown that most African countries bear the greatest burden of zoonoses [ref]. Besides the public health burden, zoonotic disease outbreaks have serious impact on the economy and public health systems of affected countries wherever they occur.

## 2.2.2 Burden of Zoonoses in Zambia

---

Zambia has a considerable burden of endemic diseases. Diseases like anthrax, zoonotic tuberculosis and rabies (Ref) are widespread especially among livestock keepers, but their neglected nature (Neglected Tropical Diseases [NTDs]) provides a false perception of low public health importance. Additionally, due to their occurrence in remote reach and neglected communities, these diseases are further classified under Poverty Related Diseases (PRDs). Despite the huge burden of endemic zoonoses (comprising both NTDs and PRDs) and increased risks of emergence of novel zoonotic diseases, there is still little awareness about them, even among various health professionals in Zambia. While there is no single intervention that can address all zoonoses, it is now increasingly recognized that the establishment of inter-sectoral collaborative mechanisms is the most efficient strategy to address existing and emerging zoonoses. However, the coordination mechanisms in place are more administrative in nature and not always effective in promoting diffusion of knowledge across sectors. With the advent of COVID-19, there has been a serious need that was felt by various health sectors. The country envisions establishing a formal coordination mechanism backed with legislation to address the emergence of Zoonotic diseases.

## 2.2.3 Surveillance for Zoonotic Diseases in Zambia

---

The surveillance of Zoonotic Diseases in Zambia remains uncoordinated. The human health and animal health sectors run parallel zoonotic disease surveillance and control programs. As a result, there is little data sharing between the sectors, and resources that could well be utilized in less costly preventive measures are often reserved for response. Following the occurrence of a Zoonotic disease, response is frequently characterized by a series of emergency activities to contain and manage infection in human populations. Once established that the infection is of animal origin, this is often followed by culling of animal populations which further exacerbates poor living conditions for the traditional livestock keepers. There is therefore a need to establish a coordination mechanism for data sharing and coordination in the response to zoonotic disease occurrence.

## 2.2.4 Prioritisation of Zoonotic Diseases in Zambia

---

Zoonoses are one of the highest public health priorities in Zambia. There is inadequate One Health coordination, research, advocacy, educational and administrative basis for the control of zoonoses. Furthermore, there is an urgent need to develop effective measures for surveillance, emergence response, diagnosis, prophylaxis and therapy for zoonoses in Zambia. Thus, there is need to for process that brings together representatives from human, animal, and environmental health sectors, as well as other relevant partners, to prioritize zoonotic diseases of greatest concern for multisectoral, One Health collaboration in Zambia through a One Health Zoonotic Disease Prioritization platform. This One Health Strategic plan is meant in part to facilitate this process.

## 2.3 Antimicrobial Resistance

In the human health sector, there are national programmes specific to AMR activities for TB, Malaria and HIV. Additionally, data on antimicrobial susceptibility are collected through routine laboratory testing from selected health facilities such as University Teaching Hospital (UTH) in Lusaka, Ndola Teaching Hospital, Arthur Davison Children's Hospital etc for epidemic prone bacterial pathogens such as Salmonella Typhi, Shigella species, Neisseria meningitidis, Vibrio Cholerae, Methicillin Resistant Staphylococcus aureus (MRSA), Extended Spectrum Beta-Lactamase (ESBL) producing Enterobacteriaceae, and Vancomycin Resistant Enterococci (VRE). There is also a Pediatric Bacterial Meningitis surveillance program at the UTH which has so far detected penicillin-resistant Streptococcus pneumoniae (ref). In addition, Zambia has enrolled into Global Antimicrobial Resistance and Use Surveillance System (GLASS) which provides a platform for data sharing.

In the animal health sector, there is no dedicated national programmes aimed at combating AMR. However, there is a national Veterinary Drug Residue Monitoring (VDRM) plan, which is yet to be fully implemented. Under this plan, a pilot surveillance of VDR in milk is being conducted in Central and Lusaka Provinces, focusing on penicillins, sulphonamides and tetracyclines. There is also a surveillance of Veterinary Drug Residue Monitoring (VDRM) in milk funded by FAO. There are Veterinary Drug Residues (VDR) surveillance activities being conducted at the CVRI in beef, pork, and poultry from the major meat processing plants in Lusaka.. Additionally, data on antimicrobial susceptibility are collected through routine laboratory testing at the School of Veterinary Medicine and the University Teaching Hospitals of the University of Zambia. Through the Fleming Fund, integrated AMU/AMR national surveillance is being carried out in pilot provinces.

ZAMRA registers and regulates all medicines and allied substances for human and veterinary use in Zambia. It conducts routine post-marketing surveillance (PMS), pharmacovigilance and quality control testing activities on selected registered medicines, including antimicrobials. It also licenses facilities for manufacture, wholesale, storage and distribution of medicines and allied substances. In addition, it conducts enforcement activities to curb illegal distribution of registered and unregistered medicines. However, there are limited AMR specific regulatory activities being conducted. ZAMRA, in collaboration with relevant professional bodies, enforces provisions related to dispensing of prescription only medicines, though with limitations. The national CODEX committee is in place with members drawn from relevant areas, with the mandate to coordinate the review and formulation of standards for foods and food safety; however, standards which have an impact on AMR have not been fully implemented.

### 2.3.1 Capacity and structures to conduct surveillance of antimicrobial resistance

---

In the human health sector, laboratories which are expected to conduct antimicrobial susceptibility testing (AST) are available in most of the hospitals. For most laboratories, the capacity of staff to reliably isolate,

identify, and conduct AST is poor due to lack of training in aspects of AST. Availability of reagents, SOPs, infrastructure and specialised equipment required to conduct AST is inadequate and varies by level of the facility. Of the facilities assessed, only two of the Level III hospitals namely; UTH and Arthur Davison Children's Hospital (ADH) and the national reference laboratories (TDRC and CDL) are able to conduct AST reliably. Moreover, the UTH has been using the WHONET software for collection, analysis, and sharing of AST data. In the animal health sector, under the Department of Veterinary Services (DVS), there is a National Laboratory at the Central Veterinary Research Institute (CVRI), six (6) Regional Laboratories in selected provinces as well as laboratories at district level, and Private laboratories. Although CVRI has the capacity to screen for VDR, the capacities (human and material resources) to isolate, identify, and conduct AST at all levels needs strengthening. There is capacity for phenotypic and genotypic characterisation of bacteria, fungi and viruses at UNZA School of Veterinary Medicine.

## 2.4 Environmental Health

Environmental Health covers the theory and practice of assessing, correcting, controlling and preventing factors in the Environment which can adversely affect the health of the present and future generations (WHO, 1993). The pillars of Environmental health include Community Health; Food Safety and Hygiene; Pollution Control; Occupational Health and Safety; Built Environment and overarching components such as Port Health, Climate Change mitigation and adaptation measures. On the other hand, environmental protection is concerned with protecting the natural environment for the benefit of human health and the ecosystem. Environment and the factors associated with it are other parts of the causes of many epidemic diseases both in the developed and developing nations. In Zambia, environmental health problems arise from population pressure on housing, poor environmental sanitation, coupled with lack of safe water and basic housing facilities. Despite the deplorable state of environmental health (lack of safe water, bad housing conditions, and so on), there is no reliable and timely means of surveillance or any monitoring system. Currently, environmental health surveillance remains in its infancy in Zambia. The scope of its surveillance lies across various sectors which include Environment, Human Health, Mining, Animal Health, Tourism and Wildlife, each aligned to specific objectives. The introduction of the Environmental epidemiology module to the Zambia Field Epidemiology training Program (FETP) and the masters in Ecological Public health at the University of Zambia, seeks to produce a group of rapid responders capable of responding to acute environmental incursions across all aspects of environmental health ( Zambia NHSP, 2022). Additionally, this will result in establishing linkages of various environment related activities to human health by ensuring human activities such as land use, mining etc are conducted within the confines of environmental health to reduce the emergence of zoonotic diseases arising at human-wildlife interphase.

In the area of pollution prevention and control, poisoning is among the major public health problems and Zambia is no exception. The country has seen an increase in the number of poisoning cases as confirmed by post-mortem (MoH, 2020). Further, the World Health Organisation has compiled statistics on the distribution of poisoning cases in Africa and Zambia was above the regional average (WHO, 2018). To address this, the Ministry of Health in collaborating with Chemicals Observatory for the Sound Management of Chemicals in Africa (Africa ChemObs), Zambia Environmental Management Agency (ZEMA) and other stakeholders facilitated the establishment of the National Poison Centre.

Response plans for chemical events have been established, which include the Environmental Emergency Response Plans under ZEMA and the National Public Health Emergency Preparedness and Response Plan under MOH. ZEMA is also implementing the Global Harmonised System (GHS) of chemical identification and labeling and the Transportation of Dangerous Goods (TDG) (WHO/JEE, 2017). However, there is still limited; laboratory capacity to identify all priority chemicals, human resources, and financial support for chemical management. To detect and respond to chemical events, coordination and collaboration between different government agencies including ZEMA, MoH and Ministry of Agriculture is necessary. However, a proper coordination mechanism between different agencies is still not in place (WHO/JEE, 2017).

Points of Entry play a pivotal role in addressing health threats across international borders. Currently Zambia has fourteen (14) designated Points of Entry and twenty-four (24) authorised Points of Entry. In the recent past, strides have been made to acquire infrastructure and human resource to support implementation of port health services at thirteen (13) authorized Points of Entry.

Regarding climate variability and change, MoH spearheaded the development of a Health National Adaptation Plan (HNAP) to climate change. The plan aims at ensuring that the health of the population in Zambia is protected from the effects of climate change (HNAP, 2019). Furthermore, the Vulnerability Risk Assessment and Mapping (VRAM) undertaken highlighted the possible effects of climate change on public health security (ZNPFI SP, 2022).

Radiological and nuclear emergencies, though very rare, have severe impact on human, animal and environmental health when they happen. To counter radiological and nuclear hazards, events or emergencies, timely detection and an effective response mechanisms are required. The Radiation Protection Authority (RPA) is the national regulatory body for all matters relating to radiation protection including radiation monitoring in the country. The Authority conducts annual Safety Assessments for registered facilities that use radiation sources in various sectors. The availability of an emergency and response plan to mitigate the impact of an event occurring, is one of the conditions for issuing a licence.

Assessments for radioactivity in consumer products, monitoring of imported and local foods to detect any potential contamination with radioactive material and environmental radiation monitoring are still in their infancy due to inadequate laboratory infrastructure. However, laboratory capacity at the National Institute for Scientific and Industrial Research for systematic analysis of radioactivity is being enhanced with assistance from cooperating partners.

Legislation related to management of radiation utilization is in place, however, there is no specific national policy on radiological and nuclear emergency preparedness and response. RPA and Disaster Management and Mitigating Unit (DMMU) are working towards establishing a national coordination mechanism for radiation emergencies. A national Nuclear and Radiological Response Plan is being drafted. This will include strategies and plans for detection, assessment, and timely response to radiological and nuclear emergencies.

## 2.5 Food Safety

Over the past three decades, approximately 75 percent of new human infectious diseases have been zoonotic [ref]. The global population has now exceeded 7 billion people, and an estimated 30 billion food animals were produced to help feed this population and meet its growing demand for protein from animal sources [ref]. The result is a phenomenal global food system that is both a major agricultural and business accomplishment and an unparalleled challenge that is creating major societal issues that, to some extent,



threaten human, animal, and environmental health. In addition, the current era of emerging infections and pace of emergence is accelerated with changing ecosystems, risky human behaviour, poverty, travel, trade, globalization, population growth, and our interconnectedness. Food as a potential vehicle for disease transmission is embedded in this complex system; food safety has taken on a growing importance and has become a critical public health imperative.

As a further consequence, the safety of food is being increasingly scrutinized by the public, and food-borne illnesses are significant, costly, and a global problem. The Codex Alimentarius Commission provides guidance on standards and guidelines relating to food safety. The application of a One Health model where potential solutions are viewed and delivered more holistically and with an emphasis on prevention is a compelling and timely strategy.

Food safety is becoming an important priority in Zambia. In addition to the Codex Alimentarius standards, the government has revised its food safety strategy and has prepared new legislation to improve and modernize food safety governance. In the private sector, several food enterprises are upgrading their food safety practices meeting international standards and to be able to cater for increasing demand. These improvements are timely and appropriate. While the extent of food borne risks is not fully known in Zambia, recurrent foodborne illnesses such as cholera and typhoid outbreaks, are common in Zambia and result in significant human and economic costs. Despite this, the public awareness remains low, making the population highly vulnerable to life threatening outbreaks of food poisoning. The causes of food poisoning and contamination range from production and handling practices to the unsafe use of veterinary drugs and agriculture chemicals.

In view of the above, sustainable food production and environmental stewardship is paramount and will require a One Health approach. This approach can be applied to food safety, sustainable food production, and environmental stewardship by bringing together inter-disciplinary teams to create a One Health network to address food safety challenges.

## 2.5 International Health Regulations (IHR) 2005

Zambia responds to public health events and emergencies in line with the International Health regulations (IHR) 2005. The IHR guidelines were enacted in 2005 and Zambia as a member of WHO is legally bound to the implementation of the guidelines. In 2006, the Resolution AFR/RC56/R2 of the Regional Committee for Africa in Addis Ababa called for the implementation of the IHR 2005 among member countries in the context of the Integrated Disease Surveillance and Response (IDSR). The IHR 2005 has an expanded scope to include all public health emergencies of international concern. The implementation of IHR 2005 guidelines focuses on the 8 core capacities including legislation, policy and coordination, surveillance, preparedness, response, risk communications, laboratory, and human resources at national and sub-national levels. A developed checklist and indicators for monitoring progress in the development of IHR Core Capacities in State Parties have been developed and have been defined using capability levels (i.e. the level of performance attained by a State Party for a given indicator, component and core capacity). The aim of the checklist is to enable self-assessment of the status of States Parties' core capacity development and identify areas for strengthening. The table 1 gives the scores of the core capacities based on the latest (2017) Joint External Evaluation (JEE) that was done in Zambia [ref].

Technical areas	Indicators	Score
National legislation, policy and financing	P.1.1 Legislation, laws, regulations, administrative requirements, policies, or other government instruments in place are sufficient for implementation of IHR (2005)	2
	P.1.2 The State can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with IHR (2005)	2
IHR coordination, communication and advocacy	P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR	1
Antimicrobial resistance	P.3.1 Antimicrobial resistance detection	4
	P.3.2 Surveillance of infections caused by antimicrobial-resistant pathogens	4
	P.3.3 Health care-associated infection (HCAI) prevention and control programs	3
	P.3.4 Antimicrobial stewardship activities	3
Zoonotic diseases	P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens	3
	P.4.2 Veterinary or animal health workforce	4
	P.4.3 Mechanisms for responding to infectious and potential zoonotic diseases are established and functional	1
Food safety	P.5.1 Mechanisms for multisectoral collaboration are established to ensure rapid response to food safety emergencies and outbreaks of foodborne diseases	2





Technical areas	Indicators	Score
Biosafety and biosecurity	P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities	2
	P.6.2 Biosafety and biosecurity training and practices	1
Immunization	P.7.1 Vaccine coverage (measles) as part of national program	4
	P.7.2 National vaccine access and delivery	4
National laboratory system	D.1.1 Laboratory testing for detection of priority diseases	4
Real-time surveillance	D.1.2 Specimen referral and transport system	2
	D.1.3 Effective modern point-of-care and laboratory-based diagnostics	3
	D.1.4 Laboratory quality system	3
	D.2.1 Indicator- and event-based surveillance systems	3
	D.2.2 Interoperable, interconnected, electronic real-time reporting system	2
	D.2.3 Integration and analysis of surveillance data	3
	D.2.4 Syndromic surveillance systems	3
Reporting	D.3.1 System for efficient reporting to FAO, OIE and WHO	2
	D.3.2 Reporting network and protocols in country	2
Workforce development	D.4.1 Human resources available to implement IHR core capacity requirements	3

Technical areas	Indicators	Score
	D.4.2 FETP1 or other applied epidemiology training program in place	3
	D.4.3 Workforce strategy	2
National legislation, policy and financing	P.1.1 Legislation, laws, regulations, administrative requirements, policies, or other government instruments in place are sufficient for implementation of IHR (2005)	2
	P.1.2 The State can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with IHR (2005)	2
IHR coordination, communication and advocacy	P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR	1
Antimicrobial resistance	P.3.1 Antimicrobial resistance detection	4
	P.3.2 Surveillance of infections caused by antimicrobial-resistant pathogens	4
	P.3.3 Health care-associated infection (HCAI) prevention and control programmes	3
	P.3.4 Antimicrobial stewardship activities	3
Zoonotic diseases	P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens	3
	P.4.2 Veterinary or animal health workforce	4
	P.4.3 Mechanisms for responding to infectious and potential zoonotic diseases are established and functional	1

Technical areas	Indicators	Score
Food safety	P.5.1 Mechanisms for multisectoral collaboration are established to ensure rapid response to food safety emergencies and outbreaks of foodborne diseases	2
Biosafety and biosecurity	P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities	2
	P.6.2 Biosafety and biosecurity training and practices	1
Immunization	P.7.1 Vaccine coverage (measles) as part of national programme	4
	P.7.2 National vaccine access and delivery	4
National laboratory system	D.1.1 Laboratory testing for detection of priority diseases	4
	D.1.2 Specimen referral and transport system	2
	D.1.3 Effective modern point-of-care and laboratory-based diagnostics	3
	D.1.4 Laboratory quality system	3
Real-time surveillance	D.2.1 Indicator- and event-based surveillance systems	3
	D.2.2 Interoperable, interconnected, electronic real-time reporting system	2
	D.2.3 Integration and analysis of surveillance data	3
	D.2.4 Syndromic surveillance systems	3
Reporting	D.3.1 System for efficient reporting to FAO, OIE and WHO	2
	D.3.2 Reporting network and protocols in country	2
Workforce development	D.4.1 Human resources available to implement IHR core capacity requirements	3

Technical areas	Indicators	Score
	D.4.2 FETPI or other applied epidemiology training programme in place	3
	D.4.3 Workforce strategy	2
Preparedness	R.1.1 National multi-hazard public health emergency preparedness and response plan is developed and implemented	1
	R.1.2 Priority public health risks and resources are mapped and utilized	1
Emergency response operations	R.2.1 Capacity to activate emergency operations	2
	R.2.2 EOC operating procedures and plans	1
	R.2.3 Emergency operations programme	1
	R.2.4 Case management procedures implemented for IHR relevant hazards.	2
Linking public health and security authorities	R.3.1 Public health and security authorities (e.g. law enforcement, border control, customs) are linked during a suspect or confirmed biological event	1
Medical countermeasures and personnel deployment	R.4.1 System in place for sending and receiving medical countermeasures during a public health emergency	1
	R.4.2 System in place for sending and receiving health personnel during a public health emergency	1
Risk communication	R.5.1 Risk communication systems (plans, mechanisms, etc.)	2
	R.5.2 Internal and partner communication and coordination	3
	R.5.3 Public communication	4
	R.5.4 Communication engagement with affected communities	3
	R.5.5 Dynamic listening and rumour management	4

Technical areas	Indicators	Score
Points of entry	PoE.1 Routine capacities established at points of entry	1
	PoE.2 Effective public health response at points of entry	1
Chemical events	CE.1 Mechanisms established and functioning for detecting and responding to chemical events or emergencies	2
	CE.2 Enabling environment in place for management of chemical events	3
Radiation emergencies	RE.1 Mechanisms established and functioning for detecting and responding to radiological and nuclear emergencies	2
	RE.2 Enabling environment in place for management of radiation emergencies	2

**Scores: 1=No capacity; 2=Limited capacity; 3=Developed capacity; 4=Demonstrated capacity; 5=Sustainable capacity.**

## 2.6 Strengths, Weaknesses, Opportunities and Threats Analysis for One Health Implementation in Zambia

### 2.6.1 Governance and Coordination

The Government of Zambia and its stakeholders supports the quadripartite approach of mitigation against public health events using in multisectoral One Health methodology. This approach requires good coordination mechanism that is legally supported so that everyone works towards a common goal. Zambia has legal and policy frameworks that exist for different sectors. The enactment of ZNPHI Acts of Parliament no. 19 of 2020 provided for the establishment of an institution that is responsible for anchoring of coordination mechanism for One Health activities in the Country. This is supported by other available pieces of legislation and policy documents in the key sectors including animal health, human health, plant health and the environment. Further, the country has a good political will that has prioritized addressing public health events in a multisectoral One Health approach at the national and sub national levels.

In this regard there are professional multisector platforms that are existing and helps to mitigate in times of public health events. However, the implementation of activities on One Health are being hampered because of continued working in silos exacerbated by the lack of a National One platform. The platform would enable all players to execute their mandates in a coordinated way. There is also need to review and harmonise different pieces of legislation that supports the One Health approach to mitigation of public health events.

## 2.6.2 Surveillance

---

Zambia has a number of disease surveillance guidelines and SOPs. In addition, contingency plan are in existence for pathogens such as H1N1 and monkey pox. Laboratories exist at central level with the capacity to detect human, animal and environment threats which include; Central Veterinary Research Institute, National Food Laboratory, UNZAVET Laboratory and ZNPHRL. Furthermore, there are experts available to perform different surveillance duties and there are surveillance data collection tools, systems and reporting channels in the different sectors.

Despite these positives, One Health Surveillance remains a challenge in Zambia. Presently, there is no prioritised list for zoonotic diseases as well as contingency plans for most pathogens. There is also lack of policies to guide resource sharing and coordination to respond to common public health events. There is inadequate capacity and human resource to detect and confirm public health events at sub-national level. Additionally, there is still inadequate human resource at subnational levels and no integrated electronic platform for surveillance data exists.

## 2.6.3 Preparedness and Response

---

Zambia has developed strategic documents to facilitate public health preparedness and response, these include, NAPHS, All Hazards plan and H1N1 contingency plan. Efforts are underway to finalize other key documents such as the VRAM, and Integrated SOPs. The establishment of the Public Health Emergency Operation Centre (PHEOC) through the ZNPHI Act provides for the coordination of response to Public Health Events. This further augments the operations of the National Emergency Operation Centre (EOC) at DMMU. There is existence of Emergency Preparedness and Rapid Response Committees at National and Sub-national level. However, as Zambia endeavours to strengthen the One health Preparedness and Response, it still faces a lot of challenges which include, inherent bias towards human health and inadequate infrastructure capacity at provincial level especially in the Animal health, Plant health and Environmental health sectors. Currently sectors are working in silos due to lack of joint guidelines in response to public health events. Other challenges include, non-prioritization of One health response in institution action plans, epidemic preparedness plans not regularly updated and tested, inadequate human resource, isolation facilities not meeting IPC standards, and inadequate public funds for emergency response leading to donor dependency.

## 2.6.4 Advocacy, Communication and Training

---

The community has been recognized as a major stakeholder in the implementation of One Health advocacy,

communication and training activities. A call centre which serves as a communication link between public health professionals and the community exists. Furthermore, One Health training courses have been established in some training institutions in Zambia up to doctoral level. Despite these achievements, advocacy, communication and training using One Health approach has continued to encounter major challenges. These include, inadequate financial resources, primary and secondary school curricula do not capture elements of One Health, multisectoral communication channels are not fully established. Presently, there is an inherent communication bias towards human health rather than One Health and there is a lack of One Health-related Information Education and Communication (IEC) and Behavioral Change Communication (BCC) materials. Whereas capacity building exists for human resource training in One Health, there is a lack of an integration policy for personnel into their respective sectors upon completion of training.

## 2.6.5. Research

---

Zambia has demonstrable capacity to conduct One Health research given the availability of infrastructure and facilities to handle One Health threats coupled with the existence of multidisciplinary human capacity/personnel. However, the lack of One Health national agenda, inadequate legal and support policy frameworks have resulted into uncoordinated, non-integrated approach to One Health research. This current scenario has resulted into a non-functional intersectoral collaborative One Health Platform needed to respond to public health events at the animal-human-environmental interface.

Table 2 below outlines the detailed SWOT analysis of implementation of One Health in Zambia by core thematic areas.

## ONE HEALTH GOVERNANCE AND COORDINATION

### STRENGTHS

- Existence of different interest groups such as food safety, surveillance, antimicrobial resistance (AMR) and zoonosis
- Institution based coordination exists in human health, animal health, plant health and environmental health
- Establishment of ZNPHI through an Act of parliament to anchor One Health
- Existence of human health/ animal health collaboration at national level
  - Animal Health Disease Act No. 27 of 2010
  - Veterinary and Veterinary Paraprofessionals Act No. 45 of 2010
  - Public Health Act Cap 295 of 1995
  - National Agricultural Policy
  - Wildlife Policy, 2015
  - ZNPHI Act No. 19 of 2020
  - Food safety Act No. 7 of 2019
  - The Medicines and Allied Substances Act No. 3 of 2013
- Availability of Systems and infrastructure such as lab diagnostics in key sectors
- Efforts towards creation of a functional National One Health platform (need for representation of all sectors)
- Existence of epidemic preparedness platforms at national and sub national levels
- Existence of sector specific reporting channels

### WEAKNESSES

- Weak multisectoral coordination, Various stakeholders work in silos,
- Lack of an established One Health Platform supported with Memorandums of understanding and/or legislature
- Legislative process is expensive and complex
- Low perception and understanding of zoonoses and other Public Health Events
- Inadequate resources
- Resource allocation does not recognise zoonotic nature of diseases (sectors funded separately)
- Lack of One Health Policy guidelines
- Inadequate integration of One Health Concept in University/Institutions Curriculum



## ONE HEALTH GOVERNANCE AND COORDINATION

### STRENGTHS

- Good political will across different sectors to create a national One Health coordination mechanism
- Availability of experts (multidisciplinary/multisectoral) to coordinate the One Health programme
- Presence of disaster management mitigation unit (DMMU)

### WEAKNESSES

- Professional rivalry
- Bureaucratic barriers among different sectors
- Competing priorities
- Resources are project oriented with starting and ending dates

### OPPORTUNITIES

- Existence of Global and regional One Health Frameworks, Guidance, and Strategies to which Zambia is signatory
- Existence of large expertise base
- Availability of basic institutional set up within involved ministries
- Existence of multilateral and bilateral development partners and local partners
- Existence of various local One Health implementing partners
- Recognized needs for the multisectoral collaboration

### THREATS

- Conflicting interests on priority setting amongst key players
- Conflicting interests in different ministries
- High personnel turnover
- Political instability among neighbouring countries
- Existence of parallel projects with different priorities.
- Presence of (multiple) emerging and re-emerging zoonotic diseases such as Ebola

## ONE HEALTH SURVEILLANCE

### STRENGTHS

- Existence of disease surveillance guidelines
  - IDSR (3rd Edition)
  - IHR (2005)
  - COVID-19 SOPs
  - Event Based Surveillance guidelines
- Existence of an animal health surveillance system housed at the National Livestock Epidemiology and Information Centre (NALEIC)
- Availability of some disease (including AMR) surveillance field and laboratory SOPs and protocols
- Existence of the Laboratory network for animal health from 7 Provincial Laboratories to the National Level (Central Veterinary Research Institute)
- Existence of contingency plan for diseases e.g H1N1 and monkey pox
- sector specific reporting channels of surveillance data exist
- Capacity to detect human, animal and environment threats
- Systems and infrastructure available (lab diagnostics)
- Availability of eIDSR/AMR DHIS2 for reporting surveillance data
- Availability of M-health EBS pilot project
- Availability of BSL3 at the University of Zambia accessible to all OH sectors and intersectoral use of laboratory diagnostic capacity
- Availability of cross border surveillance platforms

### WEAKNESSES

- Weak inter-sectoral and intra-sectoral coordination of public health surveillance activities
- surveillance guidelines are sector specific and not harmonised in a one health approach
- Inadequate human resource at subnational levels
- Limited disease awareness at lower levels (Farmers /livestock keepers)
- Lack of an integrated electronic platform for surveillance data.
- Integrated SOPs and guidelines eg IDSR 3rd edition not widely disseminated among OH stakeholders
- Inadequate capacity to detect and confirm type of chemical, and zoonotic diseases at sub-national level (only National Food Laboratory and CVRI at national level can detect at the moment)
- Contingency plans only caters for a few pathogens
- Lack of priority list of zoonotic diseases

## ONE HEALTH SURVEILLANCE

### OPPORTUNITIES

- Existence of EBS can be expanded to include events in animals and environment.
- Possibility to integrate existing surveillance data collection and reporting tools in different sectors
- Existence of partners that support disease surveillance

### THREATS

- Conflicting and/or competing interests on priority setting and resource allocation by various sectors
- Climate change leading to increase in Emerging and re-emerging public health events
- Un-balanced partner support across different public health sectors

## ONE HEALTH PREPAREDNESS AND RESPONSE

### STRENGTHS

- Existence of Multi Hazard preparedness plan, and IDSR guidelines
- Existence of multisectoral Rapid response teams at all administrative levels
- Existence of multisectoral Epidemic preparedness platforms at all administrative levels
- Availability of experts and trained personnel across different sectors for outbreak investigation and response
- Availability of a fund for epidemic preparedness and response for public health emergencies
- Existence of the Public Health Emergency Operation Centre (PHEOC) at ZNPHI
- Existence of EOCs in line ministries
- Existence of National Emergency Operation Centre (EOC) at DMMU

### WEAKNESSES

- Epidemic preparedness plans are not regularly updated and tested
- Inadequate infrastructure capacity at provincial level especially Animal health, Plant health and environmental health sectors
- Lack of joint outbreak investigation guidelines
- The existing emergency preparedness and response teams do not utilize the one health approach
- Inadequate prioritization one health response in Institution action plans.
- Inadequate human resources
- Insufficient funds and challenges in accessing available funds during emergencies
- Emergency preparedness teams are not functional in absence of outbreaks
- Inadequate isolation facilities meeting IPC standards
- Inadequate risk assessment capacities
- Donor financial dependency to support, hence it has increased donor fatigue
- EOCs in line ministries are not fully integrated with the national PHEOC
- Inherent bias towards human health sector in support for response activities

## ONE HEALTH PREPAREDNESS AND RESPONSE

### OPPORTUNITIES

- Existence of political will and recognition of importance of response to health threats
- Existence of goodwill from cooperating partners to support response to public health threats
- Availability Financial support for preparedness and emergency response from the national treasury

### THREATS

- Occurrence of public health emergencies including those of International concern
- Global interconnectivity
- Uncontrolled influx of refugees and displaced people especially through porous border points
- The unpredictability of emerging and re-emerging diseases

## ONE HEALTH ADVOCACY, COMMUNICATION AND TRAINING

### STRENGTHS

- The community has been recognised as a major stakeholder in the implementation of one health activities
- A call centre which serves as a communication link between public health professionals and the general public exists
- Availability of One Health training programmes

### WEAKNESSES

- Inadequate financial resources for advocacy, communication and training
- Primary and secondary school curricula do not capture elements of One Health
- One Health communication channels not fully established
- Weak mechanisms for analyzing and sharing data among One health stakeholders
- Inherent communication bias towards human health rather than One health
- Lack of one health-related Information Education and Communication (IEC)/ Behavioral Change Communication (BCC) materials
- lack of an integration policy for personnel into their respective sectors upon completion of OH training
- Lack of awareness among community members on the human, animal interface and how their activities contribute to climate change and emergence and re-emergence of infectious pathogens

## ONE HEALTH ADVOCACY, COMMUNICATION AND TRAINING

### STRENGTHS

- Zambia is signatory to existence of Global and regional One Health Frameworks, Guidance, and Strategies, this can be used for advocacy
- Functions of the existing call center can be expanded to comprehensively cover One health matters
- High demand for capacity building and professional development among One Health stakeholders
- The existing Risk Communication and Community Engagement platform under human health can be utilized for One-Health related communication
- Existence of Training institutions that can incorporate One Health in their curricula

### WEAKNESSES

- Conflicting interests in advocacy, communication and training priority setting among key players and participating agencies
- Some cultural beliefs and practices predispose communities to One Health-related risks (e.g. Game hunting) and hinder implementation of RCCE activities
- Constrained resources are a threat to implementation of advocacy, communication and training activities

## ONE HEALTH RESEARCH

### STRENGTHS

- Availability of Infrastructure and facilities to conduct research into OH threats such as BSL-3 at UNZAVET, the Africa Center of Excellence for Infectious Diseases for Humans and Animals (ACEIDHA), a research center for OH at UNZA, ZNPHIRL, ZARI, and CIDRZ
- Existence of multidisciplinary Human capacity/personnel to handle research in OH
- Existence of Long-term collaborative platforms and partners in OH research e.g.; SATREPS-Viral Zoonoses Research in Africa, housed at UNZA
- Presence of political will that encourages multi-sectoral research
- Presence of OH-postgraduate studies at UNZA that foster research in OH: i.e. One Health Analytical Epidemiology, One Health Laboratory Diagnostics, One Health Food Safety,
- Participating institutions are currently conducting relevant and reliable research related to One Health
- Existence of research information sharing systems
- Existence of rich and diverse natural resources for use in research
- Presence of the Zambia National Public Health Institute as a National OH coordinating Centre
- Presence of the National Health Research Authority (NHRA) which regulates health research.

### WEAKNESSES

- Each institution is conducting research in isolation [Research SILOS]
- Inadequate information sharing among institutions on One Health research
- Inadequate support by policy makers
- Poor funding to research and development sector
- Inadequate lab facilities and infrastructure specifically dedicated to research
- Conversion of research labs to diagnostic labs for the purpose of monetary gain
- Inadequate research themes in OH research
- Failure to adequately communicate OH research outcomes for the purpose of policy formulation
- Failure to uptake OH Research findings/outputs by policy makers [Sector Advisory Groups (SAGs), don't consider research as an important factor]
- National research agendas do not address One Health issues
- Inadequate laboratory capacity for research of highly infectious pathogens (where biosafety containment is required)



## ONE HEALTH RESEARCH

### OPPORTUNITIES

- Zambia lies in a high-risk region for occurrence of emerging/re-emerging public health threats, this provides an opportunity for research
- Existence of external funding agencies for OH research
- Expression of interest from development partners for research and innovation
- Existence of National, Provincial and District Task Forces aimed at OH threats such as the Rabies Task Force at National and District levels

### THREATS

- High staff turn-over and brain drain
- Poor enabling environment for researchers [i.e. Low salaries]
- Possibility for loss of intellectual property rights as well as publishing copyrights as most of the research is externally funded
- Externally developed research protocols not answering to our immediate OH research themes [requesting our researchers to restrict their work to Prevalence, KAP studies, pathogen isolation/characterisation without studies such as in vaccinology for instance]-hence research remaining rudimentary
- Donor fatigue may lead to reduced support of research
- Global economic down-turn derailing already established OH research themes
- Change in government policies making research unsustainable
- Certain customs and culture will not allow some types of research to be conducted

## 3.0 Organizational Functions

### 3.1 One Health Steering Committee

The OH Steering Committee will provide overall oversight to coordination of One Health approach in Zambia. The One Health Steering Committee will be composed of Permanent Secretaries from the key sectors and organizations on public health events. These include;

- The Permanent Secretary, Technical - Ministry responsible for Human Health
- The Permanent Secretary - Ministry responsible for Animal Health
- The Permanent Secretary - Ministry responsible for Agriculture
- The Permanent Secretary - Ministry responsible for Tourism and Natural Resources
- The Permanent Secretary - Ministry responsible for Environment
- The Permanent Secretary - Ministry responsible for Local Government
- The Permanent Secretary - Ministry responsible for Water Supply and Sanitation
- The Permanent Secretary - Ministry responsible for Legal affairs and
- The National Coordinator - Disaster Management and Mitigation Unit (DMMU)

The One Health Steering Committee may co-opt cooperating partners (bilateral and multilateral partners) in its discharge of duties. These may include but not limited to:

- The United Nations Resident Coordinator (UNRC)
- The Country Representative for the World Health Organization (WHO)
- The Country Representative for the Food and Agriculture Organization (FAO)
- The Country Delegate for United Nations Environment Program (UNEP)
- The Country Delegate, World Organization for Animal Health (WOAH)
- The RCC coordinator, Africa Centers for Disease Prevention and Control (Africa CDC)
- The Country Director, World Bank
- The Country Head of Mission, US Centers for Disease Prevention and Control (US CDC)
- The UK Health Security Agency (UKHSA)

The Zambia National Public Health Director General shall be the secretariat to the One Health steering committee.

### 3.2. One Health Coordinating Committee (OHCC)

The OHCC will be the technical coordinating committee for sectors in One Health. The OHCC shall comprise representation from various Ministries. The OHCC may co-opt Non-governmental organizations and cooperating partners including multilateral and bilateral cooperating partners. The OHCC will be composed of the following institutional membership:

- The Representative - Disaster Management and Mitigation Unit (DMMU)
- The Director, Public Health, Ministry of Health
- Director, Clinical Care Services, Ministry of Health
- The Director - Health Promotion, Environment and Social Determinants of Health, Ministry of Health

- The Director, Department of Veterinary Services
- The Director, Department of Livestock Development
- Director, Department of Fisheries
- The Director, Department of Agriculture
- The Director, Department of National Parks and Wildlife
- The Director, Department of Environmental Protection
- The Director, Department of Municipal Infrastructure Development
- The Director, Department of Physical Planning
- The Director, Department of Water Supply and Sanitation
- The Director, Surveillance and Disease Intelligence, ZNPHI
- The Director, Emergency Preparedness and Response, ZNPHI
- The Director, Strategic Information Management, ZNPHI
- The Director, Laboratory Network Systems, ZNPHI

The Zambia National Public Health Institute will serve as secretariat to the OHCC.

## 3.3. Technical Working Groups (TWG)

The TWGs will be composed of technical representation from various Ministries, Non-governmental organizations and cooperating partners based on the following thematic areas: Governance and coordination, Surveillance, Preparedness and Response, Advocacy Communication, and Training, and Research.

### 3.3.1. Governance and coordination

---

The Governance and Coordination TWG will be responsible for the daily management of the OHA in the country and coordination of various sectors in OH. This TWG will be composed among others the OH focal points from ZNPHI, line ministries across sectors, multilateral and bilateral partners. The Governance and Coordination TWG will provide the secretariat to the TWGs and will report to the National OHCC.

The roles and responsibilities will be to:

Mobilise resources

- Facilitate intersectoral coordination of public health events surveillance
- Facilitate intersectoral coordination of public health emergencies investigations
- Co-Opting the subject matter experts as necessary to respond to a public health emergency
- To facilitate and coordinate the monitoring and evaluation of the OH strategic plan

### 3.3.2. Surveillance TWG

---

The roles and responsibilities of the Surveillance TWG are to:

- Identify and advise on public health events

- Prepare guidelines for public health events surveillance
- Proposal preparations for different surveillance programs
- Provide technical guidance on surveillance of public health events
- To monitor and evaluate surveillance programme
- To prepare reports on public health events surveillance to OHCC
- Prepare and implement early warning system for public health events
- Meeting schedule: Quarterly/when needed

### 3.3.3. Preparedness and Response TWG

---

The roles and responsibilities of the Epidemic Preparedness and Response TWG are to:

- Prepare SOPs for epidemic preparedness and response
- Prepare proposals on epidemic preparedness and response for resource mobilization
- Provide technical guidance to the nation on public health epidemic preparedness and response
- Prepare work plans and budgets for the national epidemic preparedness and response
- Prepare national reports and present to the OHCC on epidemic preparedness and response

### 3.3.4. Advocacy, Communication and Training

---

The roles and responsibilities of the Advocacy and Communication TWG are to:

- Operationalize OH strategy under respective thematic area
- Prepare annual plan as per strategy
- Report to OHCC on the progress to the implementation of OH strategy
- Develop and implement communication and advocacy strategies
- Coordinate behavior change communication and risk communication

### 3.3.5. Research TWG

---

The Research and Development TWG will be comprised of members from the academia, research institutions and other sector institutions in OH.

- The roles and responsibilities of the Research and Development TWG are to:
- Coordinate, develop and implement research and knowledge management activities
- Operationalize OH strategy under respective thematic area
- Prepare annual plan as per strategy
- Report to OHCC on the progress to the implementation of OH strategy

# 4.0 Five-Year Strategic Direction

## 4.1 Vision

A nation with a sustainably balanced and optimized health of people, animals and ecosystems.

## 4.2 Mission

To build a strategic, functional and sustainable platform that advances One Health.

## 4.3 Thematic Goals

The strategic plan is divided into the following core thematic areas and goals:

- Governance and Coordination - To have a functional and well coordinated One Health national program
- Surveillance – To have a functional One Health surveillance system to contribute to the reduction of zoonotic diseases and other public health events
- Preparedness and Response - To strengthen preparedness planning and improve the ability to respond to public health threats through the One health approach at all levels (community, district, provincial and national)
- Advocacy Communication and Training - Enhance awareness on One Health for professionals, policy-makers and the community
- Research - Optimize the health of human, animal and environment through evidence based OH research

## 4.4 Core Values and Principles

Partnership and Coordination – Bringing together all stakeholders in OH to work harmoniously to advance human, animal, plant and environmental health

- Innovation- Adoption of new and improved approaches and processes for managing OH
- Sustainability – Ensure continuous availability of resources and capacities for implementation of the OH approach including promoting sustainable ecosystem management
- Accountability – Acknowledging and accepting responsibility for One Health activities by all stakeholders
- Integrity – Promotion of ethical values and standards in the management and implementation of OH activities

## 4.5 Objectives, Strategies and Activities

The objectives, strategies and activities envisioned to be implemented in the five-year period are outlined in table 3 below

<b>Thematic Area 1: Governance and Coordination</b> <b>Goal: To have a functional and well coordinated One Health national programme</b>		
Objective	Strategy	Strategic activities
1.0 To review different pieces of legislation on One Health across different sectors by 2024	1.1 Mobilize national One Health Key stakeholders to work on One Health legislation	1.1.1 Engage a consultant to review and recommend different pieces of legislation on One Health 1.1.2 Hold a workshop for the consultant to present the findings to the stakeholders 1.1.3 Workshop to validate the consultant report
2.0 To operationalise the the national One Health coordinating mechanism by 2026	2.1. Reviewing and implementation of the staffing structure in relation to One Health in all line ministries.  2.2 Establish national One Health Steering Committee (OHSTC) involving PS level, One Health coordination platform (OHCP) at Directorate level and One Health Technical workings groups (OH -TWG) based on the thematic areas	2.1.1 Review and and make recommendations to improve the ZNPH staffing structure 2.1.2 Make the road map and implement it to ensure the approval OH desks in line ministries 2.2.1 Hold meetings to develop and validate terms of reference for the OHSTC, OHCP and OH-TWG/s) 2.2.2 Convene meetings for OHSTC, OHCP and OH-TWG/s 2.2.3 Request for One Health Focal Points nominations from key institutions 2.2.4 Request for nominations for One Health members to be part of the OHTWG/s based on the Thematic areas
3.0 To mobilize operational resources in order to support the activities of the national One Health strategic plan	3.1 Advocacy and lobbying for One Health funding	3.1.1 Conduct advocacy for government budget allocation for One Health 3.1.2 Conduct advocacy for increased partner funding to support One Health activities 3.1.3 Develop OH financing concept notes and proposals

**Thematic Area 2:One health surveillance,**
**Goal: A Functional One Health Surveillance System to contribute to the reduction of public health events**

Objective	Strategy	activities
1.To achieve one health surveillance among key stakeholders for early detection of Zoonotic Diseases and other public health events by the end of 2024.	1.1. Establish linkages of the existing sector surveillance systems.	1.1.1. Assessment of the existing surveillance systems 1.1.2 Conduct Workshops with stakeholders to identify the data needs for integrated surveillance system 1.1.3. Develop an integrated surveillance system for the highest priority zoonotic diseases and public health threats 1.1.4. Review of the OH surveillance System
	1.2. Establish OH policies and guidelines to facilitate data linkages	1.2.1. Advocacy meetings with policy and decision makers on OH 1.2.2. Stakeholder engagement Workshops on policy and guidelines
	1.3. Develop prioritized list of zoonotic diseases and other threats of public health importance	1.3.1. Workshop to develop One health list for priority zoonotic diseases
	1.4. Capacity Building on One Health surveillance across all sectors	1.4.1. Training Needs Assessment on OH surveillance
	1.5. Conduct a situation analysis of OH status in Zambia	1.5.1. Conduct a baseline and endline survey on OH implementation in Zambia


**4.0 FIVE-YEAR STRATEGIC DIRECTION**

Objective	Strategy	activities
2. To strengthen and establish laboratory capacity to diagnose priority zoonotic diseases and public health events at all provincial levels by 2026	2.1. Situation analysis of laboratory capacities across all sectors	2.1.1. Mapping of existing laboratory facilities and capacities across the sectors
	2.2. Integration of existing sector diagnostic facilities as informed by the situation analysis.	2.2.1. Establish a laboratory network 2.2.2. Establish a laboratory courier system for samples 2.2.3. Training of laboratory personnel in specific diagnostics 2.2.4. Workshops to develop, harmonize and review SOPs for priority zoonotic diseases across all sectors 2.2.5. Equipping of laboratories 2.2.6. Infrastructure development 2.2.7. Laboratory Diagnostic Mentorship trainings 2.2.8. Trainings in quality management system 2.2.9. Implementation of proficiency testing



**Thematic Area 3: Preparedness and Response**

**Goal: To strengthen preparedness planning and improve the ability to respond to public health threats through the One Health approach at all levels (community, District, Provincial and National)**

Objective	Strategy	Activities
1. To strengthen capacity for preparedness to respond to Zoonotic diseases, public health events of known and unknown etiology at all levels by 2026	1.1. Setting up a system to ensure sustainable resources.	1.1.1 Establish a coordinated and functional availability of Multidisciplinary emergency preparedness and response teams with TORS
	1.2 Support capacity building for one health workforce.	1.1.2 Create a one health human resource mobilizing mechanism for emergency response 1.1.3 Operationalise access to emergency funds to support all relevant sectors to carry out immediate investigation in public health events  1.2.1 Conduct trainings in EPR and RRT teams using OH approach at subnational level
	1.3 Develop exercise response plans	1.3.1 Conduct tabletop simulation exercises 1.3.2 Conduct field simulation exercises


**4.0 FIVE-YEAR STRATEGIC DIRECTION**

Objective	Strategy	Activities
2.To strengthen the coordination of emergency preparedness and response to public health events among relevant ministries and agencies by 2026	2.1. Develop coordinating mechanism for emergency preparedness and response to public health events	2.1.1 Develop integrated guidelines,SOPs and contingency plans for coordinated emergency preparedness and response of public health events. 2.1.2 Test the contingency plans developed
	2.2 Establishment of public Health Emergency Operation Centers (PHEOC) at all levels	2.2.1 Procure equipment and software for PHEOC, develop and install PHEOC dashboard for response tracker 2.2.2 Assessment of requirements to establish provincial PHEOCs 2.2.3 Train PHEOC staff in established plans and procedures 2.2.4 Create a database for subject matter experts on priority Zoonotic diseases and other public health threats. 2.2.5 Establish a OH emergency platform at different levels.

**Thematic area 4. Advocacy, Communication and Training**
**Goal: Enhance awareness on One Health for professionals, policy-makers and the community**

Objective	Strategy	Activities
1. To develop capacity for OH advocacy and communication programs at all levels of government and among stakeholders by June 2026	1.1. Integration of One Health into the current communication strategies	1.1.1 Hold meetings to review the health communication strategy for incorporation of OH communication and advocacy principles (the meetings can bring together a group of multi-sectoral and multi-disciplinary professionals) 1.1.2 Disseminate the updated communication and Advocacy strategy through workshops 1.1.3 Hold meetings to develop One health advocacy and communication packages
	1.2. develop One health advocacy and communication training packages 1.3. develop OH communication and advocacy TOT and cascaded training plan 1.4. conduct ToT (including for training institutions) in One health advocacy and communication 1.5. Cascade One health advocacy and communication trainings (including for media personnel)	


**4.0 FIVE-YEAR STRATEGIC DIRECTION**

Objective	Strategy	Activities
	1.6. Sensitization of stakeholders on One Health through different media platforms	1.6.1 Hold meetings to develop sensitization materials (print, social media, electronic)  1.6.2 Print and publish One health advocacy and communication materials  1.6.3 Conduct dissemination and sensitization meetings including media houses
2. To increase the knowledge base by incorporating One Health initiatives in pre-service	2.1. Developing One Health advocacy and communication training materials, tailored for training institutions	2.1.1 Conduct a desk review (including collecting preliminary data) of preservice and inservice curricular to examine One health content ) 2.1.2 Developing One Health advocacy and communication training materials including online modules
	2.2 Developing One Health advocacy and communication training materials including online modules	2.2.1 hold curricula review workshops To integrate One health
3. To increase awareness on One Health to policy and decision makers by July 2026	3.1. Lobbying and advocacy to policy and decision makers	3.1.1 Conduct One Health sensitization meetings / workshops for policy and decision makers 3.1.2 Hold a dissemination meeting for policy makers on One Health components

**Thematic Area 5: Research**
**Goal: Optimize the health of human, animal and environment through evidence based OH research**

Objective	Strategy	Strategic activities
1) By December, 2023, align Institutional collaborative Research to One Health by 75%	1.1 Strengthen and establish institutional agreements on collaborative research.	1.1.1 Develop, review and revise MoUs and MTAs/DTAs to include One Health among relevant research institutions. 1.1.2 Assess inventory on existing capacity and develop databases
	1.2. Improve existing laboratory and human resource capacity in One Health	1.2.1 Procure laboratory requisites based on research needs  1.2.2 Training of research teams in One Health themes 1.2.3 Hold meetings to harmonize Institutional policy and regulations on utilization of laboratory services towards One Health research
2) By December 2023, coordinate the establishment of One Health research themes among all institutions	2. .1. Establish a national One Health research agenda	2.1.1 Hold workshops and Trainings to Streamline collaborative One Health research themes 2.1.2 Develop collaborative OH research proposals 2.1.3 Quarterly OH coordination workshops 2.1.4 Conduct One Health Research

Objective	Strategy	Strategic activities
3) Between 2023 and 2027, develop and enhance existing communication channels between One Health researchers and policy makers	3.1. Effectively communicate One Health research concepts to policy and decision makers	3.1.1 Participate and present One Health research findings in existing fora (NRIS, NSTC-SRF, ZHRC, ASVMSS etc.) 3.1.2 Utilize social media and conventional media agencies/ websites to disseminate One Health research findings to the general public  3.1.3 Organize policy dialogue and discussions among policy makers on policy briefs

## 5. Monitoring and evaluation (M&E) framework

The M&E framework will help to measure the progress in the implementation of activities, as well as progress in achieving the intended objectives and targets. The coordinating structure will coordinate all stakeholders, at national, provincial, and district levels and Community, to ensure optimum utilization of available M&E resources for enhanced monitoring and evaluation.

Progress implementation of the One Health 2022-2026 strategic plan will be routinely monitored on a monthly, quarterly, bi-annual, and annual basis whilst the evaluation of the strategic plan will be done through midterm review and end-term evaluation. The midterm review will provide the opportunity to gather additional information, assess progress, as well as to make appropriate mid-course corrections

The M&E will include reviews of;

- i. Objectives
- ii. Coverage of interventions in comparison to targets
- iii. Status of indicators in line with core thematic areas
- iv. Major activities and how well they are implemented

The M&E framework below gives the objectives and activities planned for the 5 years; indicators for monitoring implementation; means and frequency of monitoring these indicators; as well as sources of information.



### M&E-Result Framework

Objective	Output Indicator	Indicator definition	Data sources/ MoV	Frequency	Lead	TARGETS				
						2022	2023	2024	2025	2026
<b>Theme: Governance and Coordination</b> <b>To have a functional and well-coordinated One Health national program</b>										
To strengthen legal framework ( policy and legislation) on One Health across different sectors by 2026	# of Orientation on OHA at national level	Number of orientation meetings held/Total number planned	Reports	Biannual	ZNPHI	0	2	2	1	1
	# of Orientation on OHA at subnational levels	Number of orientation meetings held/ Total number of meetings planned	Reports	Quarterly	ZNPHI	0	10	10	10	10
	# of Acts of Parliament reviewed the for creation of landscape analysis for OHA	# of Acts of Parliament reviewed/ out of the planned	Reports	Annual	ZNPHI	0	1	0	0	0
	Availability of policy framework for OHA coordination	The indicator asses the availability of OHA Policy Framework in place	Reports	Annual	ZNPHI	0	0	1	0	0
Availability of legislation on OHA	Availability of legislation on OHA	Legislation in place	Legislation	Annual	ZNPHI	0	0	0	1	0
	Availability of Legal Framework Operational Plan on OHA in place and implemented	Legal Framework implementation plan in place	Plan and Reports	Annual	ZNPHI	0	1	0	0	0



## 5. MONITORING AND EVALUATION (M&E) FRAMEWORK

Objective	Output Indicator	Indicator definition	Data sources/ MoV	Frequency	Lead	TARGETS				
						2022	2023	2024	2025	2026
To operationalise the national One Health coordinating mechanism by 2026	# of line ministries with a One Health focal point or One health desk	# of One Health focal points or OH desks established in Line ministries / total number of OH line ministries	Reports of the One Health steering committee	Quarterly	ZNPHI	3	5	6	8	9
	# National One Health Steering Committee (OHSC) established	# of National One Health Steering Committee (OHSTC) established/ total planned	Reports of the One Health National One Health steering committee	once	ZNPHI	0	1	1	1	1
	# One Health coordination committee (OHCC) established	# of One Health coordination committee (OHCP) established/ Total number of planned	Reports of the National One Health	once	ZNPHI	0	1	0	0	0




**5. MONITORING AND EVALUATION (M&E) FRAMEWORK**

Objective	Output Indicator	Indicator definition	Data sources/ MoV	Frequency	Lead	TARGETS				
						2022	2023	2024	2025	2026
	# of one Health Technical workings groups (OH -TWG) established	number of OH TWGs established/ Total planned	Reports of the One Health TWGs	Once	ZNPHI	5	0	0	0	0
	# of Workshop held to develop terms of Reference for OHSC, OHCP and OHTWG	# of workshops held/ Total planned	Activity reports	quarterly	ZNPHI	0	6	4	4	4
To mobilize operational resources in order to support the activities of the national One Health strategic plan	# of OH advocacy meetings for government budget allocation conducted	# of meetings conducted/								
Total number of meetings planned	Activity reports	quarterly	ZNPHI	0	4	4	4	4		
	# of advocacy meetings for increased partner funding to support OH activities conducted	# of meetings conducted/Total number of meetings planned	Activity reports	quarterly	ZNPHI	0	4	4	4	4
	# of OH financing concept notes and proposals developed	# of OH financing concept notes and proposals developed/								
# of Planned concept notes and proposals	Developed financing concept note and proposal	Annual/Once	ZNPHI	0	4	4	4	0		

Objective	Output Indicator	Indicator definition	Data sources/ MoV	Frequency	Lead	TARGETS				
						2022	2023	2024	2025	2026
<b>Theme: One Health Surveillance</b>										
<b>Goal: A Functional One Health Surveillance System to contribute to the reduction of Zoonotic Diseases and other public health events</b>										
To achieve one health surveillance among key stakeholders for early detection of zoonotic diseases and other public health events by the end of 2024.	# of surveillance system Assessments Conducted across all the sectors	Number of sector surveillance system assessments conducted/ Total number of assessments planned	Assessment reports	Annual	Ministry of Fisheries and Livestock	0	4	0	0	0
	# of workshops with stakeholders to identify the data needs for an integrated surveillance system	Number of workshops conducted with stakeholders/Total number of workshops planned	Workshop reports	Annually	Ministry of Fisheries and Livestock	0	1	1	0	0
	Availability of Functional integrated OH surveillance system for Zoonotic diseases and other public health events	Assesses the availability of an integrated OH Surveillance System for priority zoonotic diseases and public health threats	Consultancy Reports	Annually	Ministry of Fisheries and Livestock	0	1	1	0	0

Objective	Output Indicator	Indicator definition	Data sources / MoV	Frequency	Lead	TARGETS				
						2022	2023	2024	2025	2026
	# of meetings held with policy and decision makers on OH Surveillance	Number of meetings held with policy and decision makers/Total number of meetings planned	Meeting reports	Annually	ZNPHI	0	2	2	2	2
	# of data quality audits conducted	Number of data quality audits conducted/Number of data quality audits planned	Data quality audit reports	Annually	ZNPHI	0	1	1	1	1
	# of stakeholder workshops on OH policy and guidelines conducted	Number of stakeholder workshops conducted on OH policy and guidelines/ Total number of stakeholder workshops planned	Stakeholder Workshop reports on OH policy and guidelines	Annually	ZNPHI	0	2	2	2	2
	# of workshops conducted to develop a One health list of priority Zoonotic Diseases	Number of workshop conducted to develop a One health list of priority Zoonotic Diseases/Total number of planned workshops to develop a One health list of priority Zoonotic Diseases	Workshop reports	Annually	ZNPHI	0	2	0	0	0

Objective	Output Indicator	Indicator definition	D a t a s o u r c e s / M o V	Frequency	L e a d	TARGETS				
						2022	2023	2024	2025	2026
	# of Training Needs Assessment conducted on OH surveillance	Number of Training needs assessments conducted on OH surveillance/Total number of Training Needs assessments planned on OH surveillance	Training Needs Assessment reports on OH surveillance	Annually	ZNPHI	0	1	1	1	1
	# of trainings on OH surveillance conducted at all levels	Number of trainings on OH surveillance conducted at all levels/Total Number of trainings Planned on OH surveillance at all levels	Training Reports on OH Surveillance at all Levels	Bi-Annual	ZNPHI	0	2	2	2	2
	# of Surveys conducted to determine OH status in Zambia	Number of Surveys conducted to determine OH status in Zambia/ Total Number of Surveys Planned to determine OH status in Zambia	OH Status Survey Reports	Annually	ZNPHI	1	2	2	2	2
	# of Mapping and capacity assessments of existing Laboratories across the sectors conducted	Number of Mapping and capacity assessments of existing Laboratories across the sectors conducted/ Total Number of Mapping and capacity assessments of existing Laboratories Planned across the sectors.	Mapping and capacity assessment reports	Annually	ZNPHI	0	1	1	1	0



## 5. MONITORING AND EVALUATION (M&E) FRAMEWORK

Objective	Output Indicator	Indicator definition	D a t a s o u r c e s / M o V	Frequency	L e a d	TARGETS				
						2022	2023	2024	2025	2026
	# of laboratories linked to create a network	Number of laboratories linked to create a network/Total number of laboratories planned to be linked	Consultancy report/ A functional laboratory network	Annually	ZNPHI	0	0	0	1	1
	Availability of a multi-sector laboratory courier system	Laboratory Courier System Established	A Functional multi-sector laboratory courier system	Annually	ZNPHI	0	0	1	1	1
To strengthen and establish laboratory capacity to diagnose priority zoonotic diseases and public health events at all provincial levels by 2026	# of personnel trained in specific diagnostics at all levels	Number of laboratory personnel trained in specific diagnostics/ Total number of lab personnel planned to be trained	Training reports on specific Diagnostics	Bi-Annual	National Food	0	1	1	1	1
	Number of SOPs developed, harmonized and reviewed across all OH sectors	Number of SOPs developed, harmonized and reviewed for zoonotic diseases/ Total Number of SOPs Planned to be developed, harmonized and reviewed for zoonotic diseases	SOPs Available	Annually	Ministry of Fisheries and Livestock	0	4	4	4	4



## 5. MONITORING AND EVALUATION (M&amp;E) FRAMEWORK

Objective	Output Indicator	Indicator definition	D a t a s o u r c e s / M o V	Frequency	L e a d	TARGETS				
						2022	2023	2024	2025	2026
	# of laboratories equipped with equipment and supplies	Number of laboratories equipped/ Total number of laboratories Planned to be equipped	Inventory of lab equipment	Annually	ZNPHI	0	1	1	1	1
	# of Laboratories Infrastructure renovated or Constructed	Number of laboratories renovated or constructed/Total number of laboratories Planned to be renovated or constructed	Infrastructure reports	Annually	ZNPHI	0	1	1	1	1
	# of Laboratory Diagnostic Mentorship trainings conducted at all levels	Number of Laboratory mentorship trainings conducted/ Total number of Laboratory Diagnostics mentorship trainings planned	Laboratory Mentorship Training reports	Bi-annual	ZNPHI	0	0	2	2	2
	# of trainings conducted in quality management system at all levels	Number of QMS trainings conducted/Total number of planned QMS trainings	QMS training reports	Bi-annual	ZNPHI	0	0	0	0	2
	# of proficiency testings conducted	Number of Proficiency testing conducted/Total number of planned Proficiency testings	Proficiency Testing reports	Annually	National Food	0	0	2	2	2

Objective	Output Indicator	Indicator definition	D a t a s o u r c e s / M o V	Frequency	L e a d	TARGETS				
						2022	2023	2024	2025	2026
<b>Theme: Preparedness and Response</b>										
<b>Goal: A Functional One Health Surveillance System to contribute to the reduction of Zoonotic Diseases and other public health events</b>										
To strengthen capacity for preparedness to respond to Zoonotic diseases, public health events of known and unknown etiology at all levels by 2026	# of multi-disciplinary emergency response teams at all levels with TORS	number of emergency response teams created /planned	Meeting minutes and reports	Annually	ZNPHI	0	1	10	58	58
	# OH HR surge activities for emergency response conducted	Number of OH HR surge strategic activities conducted/ Total number planned	Meeting minutes and reports for the OH HR surge strategic plan	Annually	ZNPHI	0	1	1	1	1
	Proportion of emergency funds accessed by all sectors	funds used to respond to outbreaks / Total funds available	Contingency plan and sectoral reports	Annually	ZNPHI	1	4	4	4	4
	proportion of EPR and RRT teams trained using OH approach at the subnational level	Number of EPR and RRT teams trained/Total # of EPR and RRT teams	# of tabletop Training reports	Bi- annually	ZNPHI	0	200	200	120	90
simulation exercises conducted	Number of tabletop simulations conducted/ planned	# of field Reports	Quarterly	ZNPHI	0	4	4	4	4	



Objective	Output Indicator	Indicator definition	D a t a s o u r c e s / M o V	Frequency	L e a d	TARGETS				
						2022	2023	2024	2025	2026
simulation exercises conducted	Number of field simulation exercises conducted/ planned	Reports	Annually	ZNPHI	0	1	1	1	1	
To strengthen coordination of emergency preparedness and response to public health events among relevant ministries and agencies by 2026	Availability of guidelines, SOPs and contingency plans	# of guidelines, SOPs and contingency plans/#planned	Reports	Annually	ZNPHI	0	1	1	1	1




**5. MONITORING AND EVALUATION (M&E) FRAMEWORK**

Objective	Output Indicator	Indicator definition	D a t a s o u r c e s / M o V	Frequency	L e a d	TARGETS				
						2022	2023	2024	2025	2026
	# of contingency plans reviewed and updated	number of contingency plans/ Total number of contingency plans available	Meeting minutes and reports	Quarterly	DMMU	0	4	4	4	4
	Availability of PHEOC equipment (software, furniture, TV monitors, etc)	This indicator assesses the availability of PHEOC equipment at provincial levels.	Inventory reports	Annually	ZNPHI	0	1	0	0	0
	Number of provinces and Districts Sensitized on the creation of PHEOCS for emergency response	# of provinces and Districts Sensitized on the creation of PHEOCS for emergency response	Sensitization reports	Annually	ZNPHI	5	63	58	0	0
	# of provinces with PHEOCS	# of Provincial PHEOCS established/Total number of provinces	Presence of PHEOCS structures	Annually	ZNPHI	0	1	0	0	0
	Proportion of staff trained in PHEOC SOPs and guidelines	# of staff trained/Total # of PHEOC staff	Training reports	Annually	ZNPHI	0	1	1	1	
	Availability of Data base on subject matter expert	This indicator assesses the Availability of the database for subject matter expertise	Data base of experts	Annually	ZNPHI	0	1	0	0	
Ensure effective multisectoral EPR committee and RRT at all levels by 2026	# of training held for stakeholders on multi-sectoral EPR committee and RRT at all levels	# of trainings conducted /# planned	Training reports	Annually	ZNPHI	0	1	1	1	1
	# of Risk assessment of potential hazard conducted	# of risk assessments conducted/# planned	Risk assessment reports	Bi- annually	DMMU	0	2	2	2	2





Objective	Output Indicator	Indicator definition	D a t a s o u r c e s / M o V	Frequency	L e a d	TARGETS				
						2022	2023	2024	2025	2026
	# of meetings held/# of meetings planned	meeting reports and minutes	Bi- annual	MoH/ZNPPI	0	2	2	2	2	
	# of meetings held to develop sensitization materials (print, social media, mass media)	# of meetings held/# of meetings planned to develop and #of materials developed/#planned	meeting reports, minutes and materials developed	Annually	MoH/ ZNPPI	0	2	2	2	2
	# of One health advocacy and communication materials printed and published	#of printed and published materials/planned	materials printed and published	Annually	MoH/ ZNPPI	0	3	3	3	3
	# of dissemination and sensitization including media houses conducted	#of meetings held/#planned	meeting reports and minutes	Bi- annual	MoH/ ZNPPI	0	2	2	2	2
To increase the knowledge base by incorporating focused on One Health initiatives by incorporating in pre-service	# of desk review meetings conducted (including collecting preliminary data) of preservice and in service curricular to examine One health content	# of desk reviews conducted/# planned	Desk review report	Annually	MoH/ ZNPPI	0	1	0	1	0



## 5. MONITORING AND EVALUATION (M&amp;E) FRAMEWORK

Objective	Output Indicator	Indicator definition	D a t a s o u r c e s / M o V	Frequency	L e a d	TARGETS				
						2022	2023	2024	2025	2026
	# of meetings held to develop One Health advocacy and communication training materials including online materials	# of meetings held to develop materials/ # planned	reports and minutes	Annually	MoH/ ZNPHI	0	2	0	2	0
	# of curricular review workshops to integrate One health held	# of review workshops held/# planned	reports and minutes	Annually	MoH/ ZNPHI	0	1	0	1	0
To increase awareness on One Health to policy and decision makers by July 2026	# of meeting held to conduct One Health sensitization for policy and decision makers	# of training institutions that have same curricula/# of common training materials developed for their trainees	meeting reports and minutes	annually	MoH/ ZNPHI	0	1	1	1	1
	# of knowledge baseline survey conducted for selected staff	# of institutions and tutors trained/ # planned	meeting reports and minutes	annually	MoH/ ZNPHI	0	1	1	1	1
	# of One health ToT conducted	# of ToTs /# planned	meeting reports and minutes	annually	MoH/ ZNPHI	0	1	1	1	1
	# of dissemination meetings held for policy makers on One Health components	# of meetings held/# planned	meeting reports and minutes	annually	MoH/ ZNPHI	0	1	1	1	1

Objective	Output Indicator	Indicator definition	Data sources / MoV	Frequency	Lead	TARGETS				
						2022	2023	2024	2025	2026
<b>Theme: Research</b>										
<b>Goal: Optimize the health of human, animal and environment through evidence based OH research</b>										
To align Institutional collaborative Research on One Health	# of MoUs, MTA & DTAs developed and signed among research institutions	Number of MoUs, MTAs & DTAs, developed and signed/Total number of MOU planned	Current MoUs, MTAs/DTAs, research materials & Records of MoUs, MTAs, DTAs available	Bi-annual	ZNPHI	0	2	2	2	2
	Availability of data-base of inventory on existing institutional research capacity	The indicator assess the availability of data base of institutional research capacity	Actual databases of each collaborating institution	Annually	ZNPHI	0	1	1	1	1





	Number of Consultative Meetings Held /Total number of meetings	Inventory of Research Themes within each collaborative Institution	Monthly	ZNPHI	1	12	12	12	12	
	# of collaborative One Health research proposals among institutions developed	Number of OH research proposals developed & submitted/ Total number planned	Existing Grants & Fully funded proposals	Annually	ZNPHI	0	1	1	1	1
	# of OH research workshops held									
	Number of Workshops held/ Total number of workshop planned	Workshop Reports	Quarterly	UNZA	0	4	4	4	4	
	# of Joint One Health Research activities	Number of joint One Health research activities held/ Total number of research planned	Reports on OH Research activities	Bi-annual	ZNPHI	0	2	2	2	2
To develop and enhance existing communication channels between One Health researchers and policy makers by 2026	# of conference proceedings held	Number of Conference proceedings Published/ Total number conferences planned	Published Conference proceedings & Published Research Reports	Bi-annual	UNZA	0	2	2	2	2



5.

## MONITORING AND EVALUATION (M&amp;E) FRAMEWORK

	# of publications of One Health research findings in local and international open	Number of OH Research published /Total number of OH research conducted	OH research findings/ websites	Quarterly	UNZA	0	4	4	4	4
	# of OH Meetings, workshops and presentations organized for policy makers	Number of meetings, workshops and presentations held /Total number of meetings planned	Policy Briefs, Reports, Presentations	Annually	ZNPHI	0	1	1	1	1



## 5.1 Two-Year Implementation Plan

The implementation plan will cover a period of two years

### Two-Year Implementation Plan

Objectives	Activities	Year: 2022	Year: 2023				Year: 2024 - 2026		
		QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	2024	2025	2026
<b>Theme: Governance and Coordination</b>									
<b>Goal: To have a functional and well-coordinated One Health national program</b>									
To strengthen legal framework ( policy and legislation) on One Health across different sectors by 2026	Conduct orientation meetings at national level on OHA	0		x		x	x	x	x
	Conduct orientation meetings at sub national levels on OHA	0				x	x	x	x
	Conduct a review of Acts of different pieces of Legislature			x					
	Draft a policy framework for OHA coordination						x		
	Drafting of legislation and regulations on OHA							x	
	Legal Framework Operational Plan on OHA in place and implemented					x			
To operationalise the national One Health coordinating mechanism by 2026	Establish One Health focal point or OH desks in line ministries		x	x	x	x	x	x	x



Objectives	Activities	Year: 2022	Year: 2023				Year: 2024 - 2026		
		QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	2024	2025	2026
	Meeting to nominate and designate members of the OHSC		X	X	X	X			
	Meeting to nominate and designate members of the OHCP		X	X	X	X			
	Meeting to nominate and designate members of the OHTWG		X						
	Workshop to develop terms of reference for the OHSC, OHCP, and OHTWG		X	X	X	X	X	X	X
To mobilize operational resources in order to support the activities of the national One Health strategic plan	Conduct OH advocacy meetings for government budget allocation		X	X	X	X	X	X	X
	Conduct advocacy meetings for increased partner funding to support OH activities		X	X	X	X	X	X	X
	Develop OH financing concept note and proposals		X	X	X	X	X	X	X





## 5. MONITORING AND EVALUATION (M&E) FRAMEWORK

Objectives	Activities	Year: 2022	Year: 2023				Year: 2024 - 2026			
		QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	2024	2025	2026	
	Advocacy meetings with policy and decision makers on OH Surveillance		X			X		X	X	X
	Stakeholders engagement Workshops on OH Surveillance policy and guidelines					X	X	X	X	X
	Workshop to develop One health list for priority zoonotic diseases		X	X						
	Training Needs Assessments on OH surveillance						X	X	X	X
	Training Workshops on OH Surveillance at all levels					X	X	X	X	X
	Conduct a baseline and endline survey on OH implementation in Zambia		X	X	X	X	X			
To strengthen and establish laboratory capacity to diagnose priority zoonotic diseases and public health events at all provincial levels by 2026	Mapping of existing laboratory facilities and capacities across the sectors						X	X		
	Establish a laboratory network							X	X	
	Establish a laboratory courier system for samples							X	X	
	Training of laboratory personnel in specific diagnostics						X	X	X	



Objectives	Activities	Year: 2022	Year: 2023				Year: 2024 - 2026		
		QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	2024	2025	2026
	Workshops to develop, harmonize and review SOPs for priority zoonotic diseases across all sectors						X	X	X
	Equipping of laboratories						X	X	X
	Infrastructure development					X	X	X	X
	Laboratory Diagnostic Mentorship trainings						X	X	X
	Trainings in quality management system						X	X	X
	Implementation of proficiency testing						X	X	X

Objectives	Activities	Year: 2022	Year: 2023				Year: 2024 - 2026		
		QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	2024	2025	2026
<b>Preparedness and Response</b> <b>Goal: To strengthen preparedness planning and improve the ability to respond to public health threats through the One health approach at all levels (community, district, provincial and national)</b>									
To strengthen capacity for preparedness to respond to Zoonotic diseases, public health events of known and unknown etiology at all levels by 2026	Establish a coordinated and functional multi-disciplinary EPR teams with TORs		x	x	x	x			
	Operationalize access to emergence funds to support all relevant sectors to carry out immediate investigations in public health events					x	x	x	x
	Conduct trainings in EPR and RRT teams using OH approach at sub-national level			x		x	x	x	x
	To conduct tabletops simulation exercises		x	x	x	x	x	x	x
	To conduct field simulation exercises				x		x	x	x



## 5. MONITORING AND EVALUATION (M&E) FRAMEWORK

Objectives	Activities	Year: 2022	Year: 2023				Year: 2024 - 2026		
		QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	2024	2025	2026
To strengthen the coordination of emergency preparedness and response to public health events among relevant ministries and agencies by 2026	Develop integrated guidelines SOPs and contingency plans for coordinated emergency preparedness and response of public health events		x						
	Review the contingency plans developed		x				x	x	x
	Procure equipment and software for PHEOC, develop and install PHEOC dashboard for response tracker		x						
	Conduct sensitization of Provinces and districts in PHEOC	x	x	x	x	x	x	x	x
	Establishment of Provincial PHEOC			x					
	Trained PHEOC staff in established plans and procedures		x				x	x	x
	Create a data base for subject matter experts on priority zoonotic diseases and other public health threats		x						



Objectives	Activities	Year: 2022	Year: 2023				Year: 2024 - 2026		
		QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	2024	2025	2026
Ensure an effective multisectoral EPR committee and RRT at all levels by 2026	Conduct training of stakeholders into multisectoral EPR committee and RRT at all levels		x				x	x	x
	Conduct risk assessment in potential hazard areas			x			x	x	x
	Develop risk communication plans based on priority Zoonotic diseases		x				x	x	x
	Preposition of emergency supplies		x				x	x	x





Objectives	Activities	Year: 2022	Year: 2023				Year: 2024 - 2026		
		QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	2024	2025	2026
<b>Theme: Advocacy, Communication and Training</b> <b>Goal: Enhance awareness on One Health for professionals, policy-makers and the community</b>									
To develop capacity for OH advocacy and communication programs at all levels of government and among stakeholders by June 2026	Hold meetings to review the health communication strategy for incorporation of OH communication and advocacy principles (the meetings can bring together a group of multi-sectoral and multi-disciplinary professionals)		X	X	X		X	X	X
	Hold workshops to disseminate the updated communication and Advocacy strategy		X	X	X	X	X	X	X



Objectives	Activities	Year: 2022	Year: 2023				Year: 2024 - 2026		
		QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	2024	2025	2026
	Hold meetings to develop One health advocacy and communication packages	X		X			X	X	
	Hold meetings to develop sensitization materials (print, social media, mass media)		X	X	X	X	X	X	X
	Print and publish One health advocacy and communication materials		X	X	X	X	X	X	X
	Conduct dissemination and sensitization meetings including for media houses			X			X	X	X
To increase the knowledge base by incorporating focused on One Health initiatives by incorporating in pre-service.	conduct a desk review (including collecting preliminary data) of preservice and in-service curricular to examine One health content		X		X		X	X	X



Objectives	Activities	Year: 2022	Year: 2023				Year: 2024 - 2026		
		QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	2024	2025	2026
	Hold a meeting to develop One Health advocacy and communication training materials including online materials			X			X	X	X
	curricular review workshops to integrate One health held		X			X	X	X	X
	knowledge baseline survey for selected staff conducted			X			X	X	X
	hold a meeting to conduct One health ToTs		X	X	X	X	X	X	X



Objectives	Activities	Year: 2022	Year: 2023				Year: 2024 - 2026		
		QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	2024	2025	2026
To increase awareness on One Health to policy and decision makers by July 2026	Hold a meeting to conduct One Health sensitization for policy and decision makers		X	X	X	X	X	X	X
	Hold a dissemination meeting for policy makers on One Health components		X	X	X	X	X	X	X
Objectives	Activities	Year: 2022	Year: 2023				Year: 2024 - 2026		
		QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	2024	2025	2026
<b>Theme: Research</b> <b>Goal: Optimize the health of human, animal and environment through evidence based OH research</b>									



Objectives	Activities	Year: 2022	Year: 2023				Year: 2024 - 2026		
		QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	2024	2025	2026
To align Institutional collaborative Research on One Health	Develop, review and revise MoUs and MTAs/DTAs to include One Health among relevant research institutions and laboratories services		X		X		X	X	X
	Assess inventory on existing capacity and develop databases		X				X	X	X
	Procure laboratory requisites based on research needs								
		X		X					
	Training of research teams in One Health themes		X	X	X	X	X	X	X
	Hold meetings to Harmonize Institutional policy and								
regulations on utilization of laboratory services towards One Health research			X			X	X	X	
To coordinate the establishment of One Health research themes among all institutions	Hold workshops and Trainings to Streamline collaborative One Health research themes		X	X	X	X	X	X	X
	Develop collaborative joint OH research proposals			X			X	X	X
	Quarterly OH coordination workshops		X	X	X	X	X	X	X
	Conduct One Health Research		X	X	X	X	X	X	X



Objectives	Activities	Year: 2022	Year: 2023				Year: 2024 - 2026		
		QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	2024	2025	2026
To develop and enhance existing communication channels between One Health researchers and policy makers	Participate and present One Health research findings in existing fora (NRIS, NSTC-SRF, ZHRC, ASVMSS etc.)		X				X	X	X
	Utilize social media and conventional media agencies/ websites to disseminate One Health research findings to the general public								
	Organize policy dialogue and discussions among policy makers on policy briefs		X				X	X	X

# List of Contributors

Workshop Attendance list				
	NAME	POSITION		CONTACT
1	Prof Roma Chilengi	DG, ZNPHI	ZNPHI	roma.chilengi@znphi.co.zm
2	Dr Geoffrey Mainda	AMR Animal Health Coordinator	AMRCC/FAO	gmainda@hotmail.com
3	Dr Christine Inambao	Senior Veterinary Officer.	MFL	namukoloim@gmail.com
4	Dr Chizimu Joseph	AMR focal person & Coordinator	ZNPHI	chizimuyjoseph@yahoo.com
5	Dr Raymond Hamoonga	One Health Lead, ZNPHI	ZNPHI	raymond.hamoonga@znphi.co.zm
6	Dr Geoffrey Mainda	AMR Animal Health Coordinator	AMRCC/FAO	gmainda@hotmail.com
7	Ms Willingness Zyambo	A.g. Quality Manager	FDCL	zwillingness@gamil.com
8	Ms Ngala Florence	Chief.EHO	MOH	ngalaflo@gmail.com
9	Ms Regina Lubasi	Chief.EHO	MOH	regina.lubasi@gmail.com
10	Dr Paul M.Zulu	Infectious Disease Specialist	ZNPHI	drzulup@gmail.com
11	Mr Chazya Simumba	Medical Laboratory scientists	ZNPHRL	chaksomnet@gmail.com
12	Dr Chilufiya Mulenga	FETP-Resident	ZNPHI	chilufyam2007@gmail.com
13	Ms Namundi Siwale	IMO	ZNPHI	stephaniesiwale@gmail.com
14	Dr.Muzala Kapina	Head, SDI	ZNPHI	muzalakapina@gmail.com
15	Prof Musso Munyeme	Lecturer -UNZA	UNZA	mussomunyeme@gmail.com
16	Dr Walter Muleya	Lecturer -UNZA	UNZA	muleyawalter@gmail.com
17	Dr.Boster Dearson Siwla	Director-RPA	RPA	boster.siwila@rpa.gov.zm
18	Ms Kabukabu Akufuna	Snr. Environmental Officer	ZNPHI	kabuakufuma@gmail.com
19	Ms Evidence Chooka	PA	ZNPHI	elizabethchooka@gamil.com
20	Mr Mushaukwa Kabuku	Director	RPA	mushaukwakl@yahoo.com
21	Dr Christine Inambao	Senior Veterinary Officer.	MFL	namukoloim@gmail.com
22	Dr Ricky Chazya	Epidemiologist	MFL	rchazya@yahoo.com
23	Ms Carol Mufana	Workforce develop-Advisor	UKHSA	carol.mufana@ukhsa.gov.uk
24	Mr Brian Siakabeya	PSWMO	MLGRD	bsiakabeya@yahoo.com


**LIST OF CONTRIBUTORS**

25	Ms Chipo Mwela	Surveillance & IPC	WHO	<a href="mailto:cmwela@who.int">cmwela@who.int</a>
26	Dr Theodora Knight - Jones	COHESA Lead	ILRI	<a href="mailto:T.Knight-Jones@cgiar.org">T.Knight-Jones@cgiar.org</a>
27	Ms Shikaseba Euniverse	M&E officer	ZNPHI	<a href="mailto:eunichindongo@gmail.com">eunichindongo@gmail.com</a>
28	Mr Wesley Mwambazi	Governance Specialist	ZNPHI	-
29	Dr Jonas Hines		US CDC	
30	Mr Yahya Kandeh		ACDC	
31	Ms Nachombe Kandila		MLGRD	
32	Ms Elizabeth Nyemba Musa		MLGRD	
33	Dr Joseph Pett	Country Lead, UKHSA	UKHSA	<a href="mailto:Joseph.pett@ukhsa.gov.uk">Joseph.pett@ukhsa.gov.uk</a>
34	Ms Hillary Chibiya		FDL	
35	Mr Rodwell Chandipo		ZEMA	
36	Ms Albertina Ngoma Moraes	Knowledge Translation Officer	ZNPHI	
37	Ms Juanita Ntemba Mumba		MoH	
38	Dr Davie Simwaba	Public Health Specialist, EBS	ZNPHI	
39	Ms Otridah Kapona	ZNPHIRL Lead	ZNPHI	
40	Mr Obrie Chewe	Epidemiologist	ZNPHI	
41	Dr Jackson Katampi	Wildlife Veterinarian	DNPW	
42	Dr Bengu Said		UKHSA	





