



Ministry of Health



Malawi Multi-Hazard Emergency Response Plan 2023-2025

Government of the Republic of Malawi
Ministry of Health
Lilongwe

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Acronyms

AAR	After Action Review
ACDC	African Center for Disease Control
AFP	Acute Flaccid Paralysis
AHSA	Animal Health Surveillance Assistants
ARCC	African Regional Certification Committee
CHAM	Christian Health Association of Malawi
CSO	Civil Society Organisation
DAHLD	Department of Animal Health and Livestock Development
DCCMS	Department of Climate Change and Meteorological Services
DFP	District IHR Focal Point
DoDMA	Department of Disaster Management Affairs
EAD	Environmental Affairs Department
EOC	Emergency Operations Centre
ERC	Emergency Risk Communication
ERP	Emergency Response Plan
EVD	Ebola Virus Disease
GPEI	Global Polio Eradication Initiative
HES	Health Education Services
HSSP	Health Sector Strategic Plan
IAP	Incident Action Plan
IDP	Internally Displaced Persons
I-MET	International Medical Emergency Team
IMS	Incident Management System
IPC	Infection Prevention and Control
MBS	Malawi Bureau of Standards
MHERP	Multi-Hazard Emergency Response Plan

MoH	Ministry of Health
MoA	Ministry of Agriculture
MOFA	Ministry of Foreign Affairs
MoE	Ministry of Education
MRA	Malawi Revenue Authority
MPS	Malawi Police Services
MPX	Monkey Pox
MDF	Malawi Defence Forces
NDPRC	National Disaster Preparedness and Relief Committee
N-EMT	National Emergency Medical Teams
NFP	National IHR Focal Point
NGO	Non-Governmental Organisation
NRRT	National Rapid Response Team
OPC	Office of the President and Cabinet
PHE	Public Health Emergency
PHEIC	Public Health Emergency of International Concern
PHEMC	Public Health Emergency Management Committee
PHERRT	Public Health Emergency Rapid Response Team
PHIM	Public Health Institute of Malawi
PMRA	Poisons Medicine Regulatory Authority
POE	Point of Entry
RCCE	Risk Communication and Community Engagement
RTA	Road Traffic Accidents
TWG	Technical Working Group
SH	Secretary for Health
STAR	Strategic Tool for Assessing Risk
WHO	World Health Organisation
WPV	Wild Polio Virus

Foreword

In the face of an ever-evolving landscape of challenges, the Republic of Malawi remains steadfast in its commitment to safeguarding the health and well-being of its citizens. As we navigate the complexities of a world marked by diverse hazards and emergencies, the importance of a robust and comprehensive emergency response plan cannot be overstated.

It is with great pleasure and a sense of responsibility that I present the National Multihazard Emergency Response Plan for the Republic of Malawi. This document is the result of tireless efforts and collaboration among various stakeholders, including government agencies, non-governmental organizations, community leaders, and international partners. The collective dedication to preparedness and resilience is evident throughout the development of this plan, reflecting our shared commitment to protecting the lives and livelihoods of our people.

Malawi, like many nations, is confronted with a myriad of hazards ranging from natural disasters to public health emergencies. The impacts of these events are far-reaching, affecting communities, economies, and our healthcare systems. Recognizing the need for a coordinated and proactive approach, the National Multihazard Emergency Response Plan has been meticulously crafted to provide a comprehensive framework for managing and mitigating the impact of emergencies across all sectors, with a particular focus on the health dimension.

This plan outlines strategic objectives, operational guidelines, and resource allocation mechanisms that will enable our nation to respond effectively to emergencies, ensuring a swift and coordinated effort in times of crisis. It emphasizes the importance of collaboration, information sharing, and the integration of local knowledge and community engagement to enhance our collective ability to respond to a diverse range of hazards.

I extend my gratitude to all those who have played a role in shaping this plan and express my confidence that its implementation will enhance our capacity to protect the health and well-being of the people of Malawi in the face of adversity.

Together, let us forge a path towards a safer and healthier future for all.



Hon. Khumbize Kandodo Chiponda,
MP Minister of Health
Republic of Malawi

Preface

The Multihazard Emergency Response Plan, is a testament to our nation's commitment to the International Health Regulations (IHR, 2005). This plan establishes a robust legal framework for preventing, detecting, and responding to public health emergencies, reflecting our determination to address health crises both domestically and in collaboration with the global community.

Strategically aligned with the principles of the IHR, 2005, this document serves as a comprehensive guideline for stakeholders engaged in One Health and public health emergencies. It embodies our proactive approach, emphasizing a coordinated, multisectoral strategy for preparedness and response.

The Public Health Institute of Malawi (PHIM), entrusted with leading efforts related to human and zoonotic diseases, holds a pivotal role in our public health landscape. This plan positions PHIM at the forefront of our national resilience strategy, acknowledging their crucial role in managing disease outbreaks and responding to public health concerns.

The imperative for this Multihazard Emergency Response Plan is underscored by the 2022 National Risk Assessment, utilizing the STAR Risk Assessment Tool. The findings emphasize the critical need for a dedicated plan to enhance our nation's capacity in addressing outbreaks, public health emergencies, and disasters.

In unveiling this document, our collective aspiration is for it to serve as a multisectoral framework for engagement, fostering collaboration across diverse sectors to strengthen our nation's preparedness and response capacities. This plan is not a mere bureaucratic requirement; it is a dynamic tool empowering us to face the uncertainties of the future with resilience and coordination.

By adopting this Multihazard Emergency Response Plan, we reaffirm our commitment to the health and well-being of the people of Malawi. May it guide our actions and fortify our nation's capacity to respond effectively to the myriad challenges that may arise.



Dr Samson Mndolo
Secretary for Health

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Chapter 1: Introduction

1.2 Goals, Aims and Objectives of the MHERP

1.2.1 Goal of the Plan

To establish an emergency response framework that effectively and efficiently prevents, prepares, and manages public health threats to limit health risks and reduce morbidity and mortality arising from hazards to achieve a resilient public health system.

1.2.2 Aim

A To define the processes for preparedness, response, and recovery to public health emergencies in Malawi. It further outlines the organizational structure of how emergencies will be managed and the roles and responsibilities of the relevant stakeholders.

1.1.3 Objectives

- To provide clear guidance on timely alertness, detection, monitoring, rapid risk assessment and grading of all public health emergencies across all levels
- To provide guidance on cooperation and coordination among relevant authorities to respond and mitigate outbreaks and public health events at national, district and community level
- To provide guidance for post-emergency transition and recovery from the impact of public health hazards
- To undertake resource mapping and resource mobilization to support public health emergencies

1.3 Audience

This plan will be used by all sectors involved in responding to public health emergencies including epidemics, disease outbreaks, public health conditions and events at all levels in Malawi.

Critical sectors and organisations include, Ministry of Health (MoH), Environmental Affairs Department (EAD), Ministry of Agriculture (MoA), Department of Animal Health and Livestock Development (DAHLD), Department of Climate Change and Meteorological Services (DCCMS), Department of Disaster Management Affairs (DODMA), Security Agencies (Malawi Police Services (MPS) and Malawi Defence Forces (MDF), Malawi Prisons Service, Department of Immigration), Ministry of Local Government, Ministry of Finance (MoF), Malawi Revenue Authority (MRA), Atomic Energy Regulatory Authority (AERA), Pesticides Control Board, Pharmacy and Medicines Regulatory Authority, Malawi Environment Protection Authority, Road Traffic Authority, Ministry of Tourism, Wildlife and Culture, Department of Wildlife and Parks, Ministry of Water and Sanitation (MoWS), Malawi Bureau of Standards (MBS), Ministry of Trade and Industry, Ministry of Information, Ministry of Foreign Affairs (MoFA), Ministry of Education, Africa CDC, The World Bank, CDC, UN Agencies, NGOs, CSOs and developmental partners.

Table 1: International Agreements, Legislations and Guidelines for Global Health Security in Malawi

International Agreements	Legislations	Plans, Strategies and Guidelines
International Health Regulations (IHR) of 2005	Public Health Act (1948)	National Rabies Control Strategy(DRAFT)
Sustainable Development Goals (SDGs)	Pesticides Act (2002)	Malawi Animal Welfare Guidelines(2019)
Paris Agreement on Climate Change	Biosafety Act (2000)	Malawi Public Health Institute Strategic Plan (2018-2022)
Global Health Security Agenda (GHSA)	Environment Management Act (2017)	Integrated Disease Surveillance and Response Guidelines
Universal Health Coverage 2030	Control and Animal Diseases Act (1967)	National Action Plan on Anti-Microbial Resistance
International Atomic Energy Agency	Atomic Energy Act (2011)	Cholera National Preparedness Plan (2021-2022)
OIE Terrestrial Animal Health Code of 2021	Milk and Milk Products Act (1980)	Guidelines on COVID 19
Sendai Framework for Disaster Risk Reduction (2015- 2030)	The National Disaster Preparedness and Relief Act (1991)	The Health Sector Strategic Plan (2017- 2022)
OIE Aquatic Animal Health Code of 2021		The Livestock Developments Strategy for Africa (LiDeSA) 2015-2035
		National TB Strategic Plan 2020-2025
		National Disaster Risk Management Policy 2015
		National Environmental Health Policy
		National Multi-hazard Contingency Plan 2022-2023
		National Adaptation Plan on Climate Change
		Disaster Risk Management Communication Strategy (2021)

1.5 MHERP Review Process and Requirement

The Multi-Hazard Emergency Response Plan will be reviewed every 2 years but may be updated in the event of major incidents. Additional sources of evidence may include simulation exercises, Intra- Action and After-Action Reviews (IAR and AAR) and joint external evaluations among others.

Chapter 2: Context

2.1 Country Information

2.1.1 Geography

Malawi is a landlocked country and occupies a land area of approximately 46,066 square miles (118,484 km²) of which 9,425 square miles (15,168 km²) are Lakes Malawi, Malombe, and Chirwa. From North to South, the country is 560 miles (901 km) long and varies in width from 50 to 100 miles (80-161 km). The country is bordered to the East and South-West by Mozambique, to the North-West by Zambia, and the North by Tanzania. Physically, Malawi is part of the Great Rift Valley of East and Central Africa: (the whole country from North to South is traversed by a deep trough between two parallel faults or cracks in the Earth's crust). Most of this trough is occupied by Lake Malawi. To the West and southwest of the lake, Malawi stretches on a plateau that stands between 3,000 and 4,000 feet (914-1,219 Meters) above sea level.

2.1.2 Climate

Malawi experiences Tropical Climate with three seasons namely, cool–cold and dry (May to mid-August); hot (mid-August to November); and rainy (November to April) per year. The variable altitudes of areas across the country lead to a wide difference in climate. For instance, the lakeshore areas have longer hot seasons with higher humidity with the temperatures at their hottest in the lower altitude areas particularly the Shire Valley. Meanwhile, rains are more prolonged in the Northern region than in any other part of the country.

2.1.3 Historical Emergency Data

Malawi is vulnerable to the impacts of extreme weather events given its location along the Great Rift Valley, rapid population growth, unsustainable urbanization, climate variability and change, and environmental degradation among others. The most common weather-related shocks affecting Malawi include floods, drought, stormy rains, and hailstorms, most of which happen on an annual basis. Over the past five decades, Malawi has experienced more than 19 major floods and 7 droughts, with varying frequencies, magnitude, and scope over the years. For example, in 2022 Moderate Tropical Storm Ana affected 20 districts and 193,558 households were affected of which 22,364 households were displaced. The Tropical Cyclone Idai of 2019 heavily affected Chikwawa, Nsanje, Phalombe and Zomba districts with 11,194 households being affected, and 15,000 livestock of different species destroyed. Floods are most common in low-altitude areas along the lakeshore areas and the Shire Valley.

In addition to the natural disasters, epidemics are another area of concern. Malawi has been affected by infectious diseases such as Cholera, Typhoid, Measles, Polio and COVID-19. This is also applicable to zoonotic diseases such as Rabies and neglected tropical diseases such as Schistosomiasis and Trypanosomiasis. Interventions are in place to address the morbidity

and mortality resulting from these diseases through WASH measures, immunization and other preventive measures including a strong surveillance system for the detection and monitoring of diseases. However, the country's vulnerability to such epidemics is still high and contributes to significant loss of life and health.

2.2 Health System Organization

2.2.1 Structural organisation of the health system

The health service delivery system in Malawi is organized at three levels which are linked by a referral system: 1) Primary (community and facility), 2) Secondary, and 3) Tertiary. The services are delivered through a network of Public Faith-Based Facilities (Christian Health Association of Malawi and Islamic Health Association of Malawi, Non-Governmental Organisations (NGOs), Private-not for-Profit, and Private-for-Profit providers. Table 2 shows the distribution of health facilities by type and ownership. Overall, the Government owns the largest number of all health facility categories.

Table 2: Distribution of health facilities by type and ownership

Facility Type	Facility Ownership					Grand Total
	CHAM	Govt	NGO	Private for- profit	Private non- profit	
Clinic	7	20	46	233	46	352
Dispensary	2	49	1	2	8	62
Health Centre	109	364	5	4	7	489
Health Post	5	89	1			95
Hospital	41	49		9	1	100
Total	164	571	53	248	62	1098

Source: Malawi Health Facility Assessment Report

After the Government, privately owned health and CHAM facilities are the most numerous. CHAM compliments public facilities through a memorandum of understanding (MOU) with prioritization of government support to CHAM facilities located outside a mandatory 8 Km radius of public facilities from one another. In 2016, there were a total of 5,090 outreach clinics, 79% of which were owned by the Government while CHAM owned 19% of these. Also, in the same year, there were 3,542 village clinics, all of which were owned by the Government.^[1]

^[1] MOH. (2016). The Health Care System. Retrieved June 22, 2022, from <https://www.health.gov.mw/index.php/2016-01-06-19-58-23/national-aids>

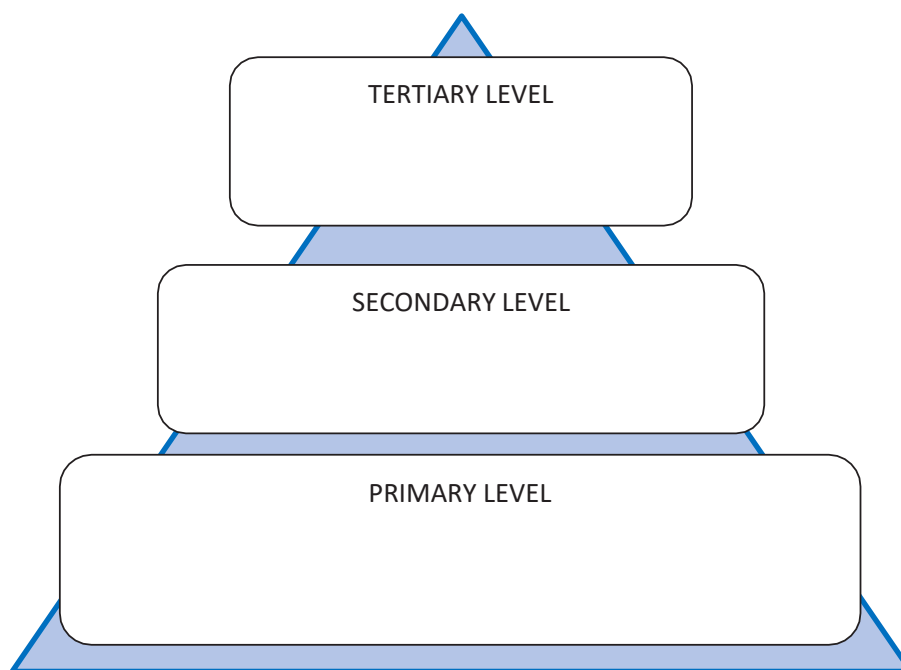


Figure 1: Malawi Health Systems Structure

Tertiary care

The top tier of care is provided by one of four central hospitals located in the major urban areas. These hospitals differ from the secondary care hospitals in the existence of more specialized services

Secondary Healthcare

Secondary-level care is provided by one of 26 district hospitals that are located in each of Malawi's districts. These hospitals are equipped to provide the same basic services as the Primary Healthcare facilities in addition to a few more, specialist services such as x-ray, ambulance, operating theatre, and a laboratory.

Primary Healthcare

This consists of community-based outreach, health posts, dispensaries, urban health centres, and primary health centres (including rural/community hospitals). At the primary level (third tier), hospitals have holding beds, post-natal beds, and holding wards, and can provide outpatient, maternity, and antenatal services. Critical cases at Primary Care Facilities are referred to the next level of the healthcare system, the Secondary Healthcare.

National level: Based on its mandate as stipulated in the 1998 National Decentralization Policy, the Ministry of Health provides oversight to the health sector in Malawi. The Ministry of Health's specific functions include strategic planning, policy-making, standards setting, technical support, monitoring and evaluation, quality assurance, resource mobilization, and international

representation. The Ministry is also responsible for the oversight of tertiary hospitals namely: Queen Elizabeth Central Hospital (CH) in Blantyre City, Zomba Central Hospital in Zomba City, Zomba Mental Hospital in Zomba City, Kamuzu CH in Lilongwe City, and Mzuzu CH in Mzuzu City.

District level, in line with the decentralised architecture, District Councils oversee the management, planning, execution, and evaluation of the health District Implementation Plans (DIPs) and budgets. A committee of councillors, the District Development Committee (DDC), provides oversight to the District Executive Committee (DEC). In turn, DEC, headed by the District Commissioner, and composed of heads of different government institutions, is responsible for all aspects of Public Financing Management (PFM). On a catchment area level within the district, Area Development Committees (ADC) and its technical arm, the Area Executive Committee (AEC) at the Traditional Authority level report to the DEC. At the village level, Village Development Committees (VDCs) provide coordination of development activities. In the case of the health sector, the Health and Environment Committee, the Health Centre Management Committee, and the Village Health Committee are the sub-committees of the DDC, ADC and VDC, respectively.

The Malawi Ministry of Health in addition to providing oversight to the Tertiary Hospitals, Coordinates the development and implementation of disease/event-specific health programs like the Malawi National AIDS Commission, National Tuberculosis and Leprosy Elimination Programme, National Malaria Control Programme.

2.2.2 Facility-based health service provision

At static delivery points, health services are provided at primary, secondary, and tertiary levels. At the primary level, health services are provided by health centres and community (rural) hospitals. Health centres offer outpatient and maternity services and are meant to serve a population of 10,000. Community hospitals are larger than health centres and offer out-patient, inpatient services and conduct minor procedures. The secondary level of care consists of district hospitals and CHAM hospitals of equivalent capacity. Secondary-level hospitals provide referral services to health centres and community hospitals as well as provide their surrounding populations with both outpatient and inpatient services. The tertiary level consists of central hospitals which ideally provide specialist health services at the regional level and provide referral services to secondary level hospitals within their region.

2.2.3 Health Programmes and Strategies

At the community level, health services are provided by Health Surveillance Assistants (HSA). Each HSA is attached to a health facility and is meant to be responsible for a catchment population of 1,000. HSAs mainly provide promotive and preventive health services through door-to-door visitations, village outreach and mobile clinics (MoH, 2011). The major guidance document for the provision of community health services is the National Health Strategy 2018.

2.2.4 Departments/Divisions/Functions Involved in Emergency Response

The multi-sectoral response to emergencies is led by the Department of Disaster Management Affairs (DoDMA). At the health sector level, the public health function falls under the Public Health Institute of Malawi, Preventive Health Services Directorate, Curative and Medical Rehabilitation Directorate, Reproductive Health Services Directorate, and Nursing and Midwifery Directorate in the Ministry of Health. At the district level, the multi-sectoral District Public Health Emergency Preparedness and Response committees are responsible for responding to emergencies in their jurisdiction.

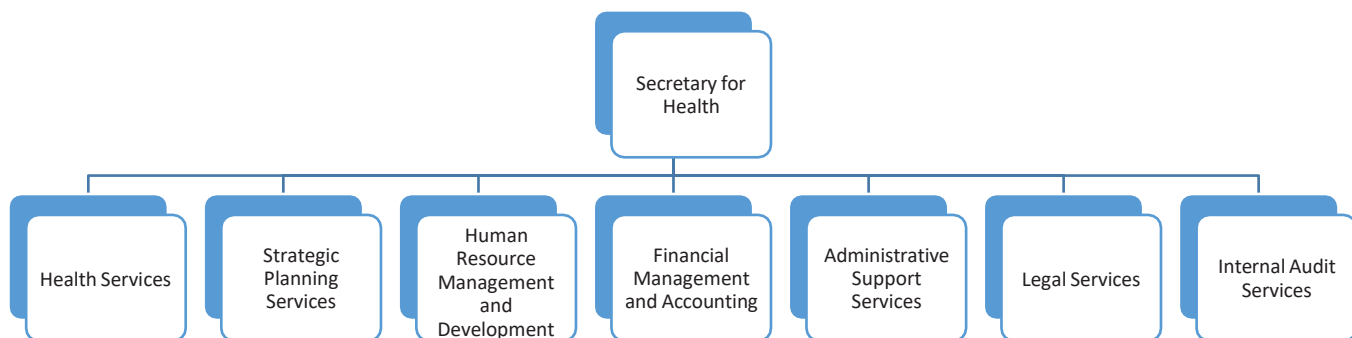


Figure 2: Organogram of the MoH

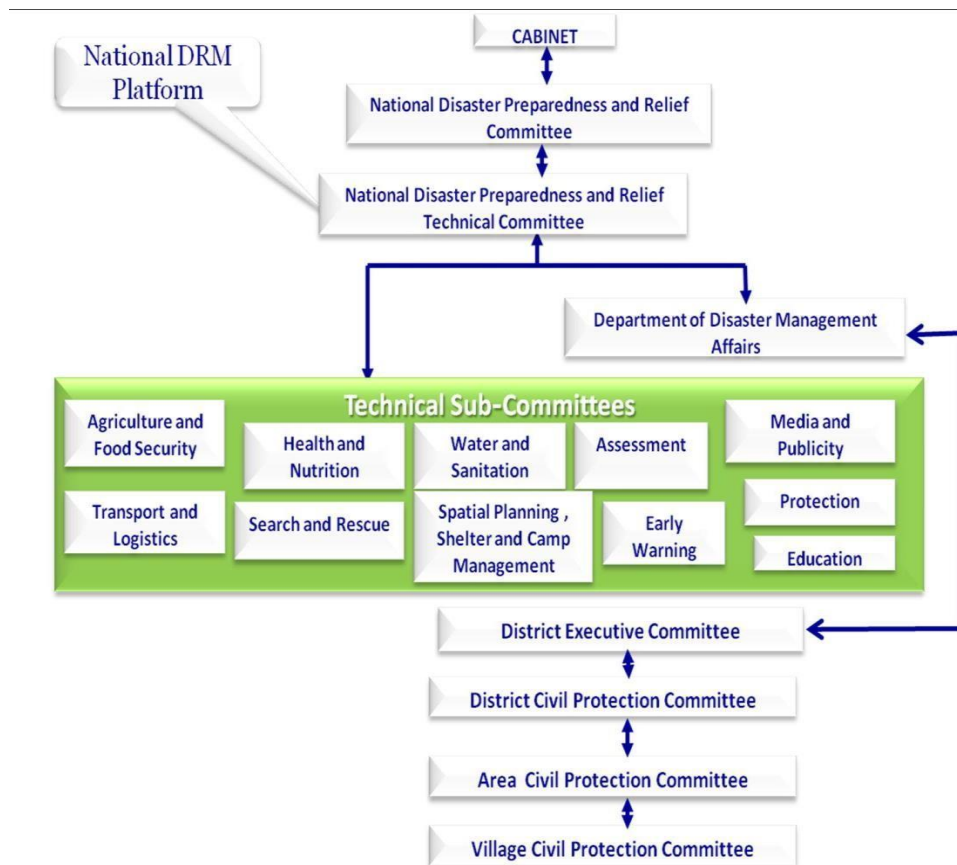


Figure 3: Functional Organisation of Department of Policy & Planning

2.3 Public Health Risk Profile

The most recent National Risk Assessment using the STAR Risk Assessment Tool was done in October 2022 and 24 Hazards were identified. From this assessment, 2 hazards were in Very High-Risk Category, 10 were in High-Risk Category, 6 were in Moderate Risk Category and 6 were in Low-Risk Category and none in the Very Low Risk Category. The hazards are subject to reviews biannually or as may be required. Strategic risk assessments specific to Points of Entry (PoEs) will be conducted to identify PoE specific hazards.

2.3.1 Key hazards or scenarios identified for contingency planning

The national risk assessment identified the Very High Risk Hazards, Floods and Cholera and 11 High Risk hazards. The following tables shows the Hazards and their risk level.

Table 3: Hazard profiles and categorization in Malawi

S/N	Specific Hazard	Risk Level
1	Floods	Very high
2	Cholera	Very high
3	Measles	High
4	Rubella	High
5	Typhoid fever	High
6	Antimicrobial resistant microorganisms	High
7	Rabies	High
8	Ebola virus disease	High
9	Transportation accidents (Road Traffic Accidents)	High
10	Cyclone	High
11	Stormy rains/Hail storm	High
12	COVID-19	High
13	Poliomyelitis	High
14	Seasonal Influenza	Moderate
15	Monkey pox	Moderate
16	Radiation agents	Moderate
17	Structural collapse (building collapse, dam/bridge failures)	Moderate
18	Earthquake (tremor)	Moderate
19	Drought	Moderate
20	Food Contamination (Food poisoning)	Moderate
21	Anthrax	Low
22	Trypanosomiasis (sleeping sickness)	Low
23	Chemical agents	Low
24	Gas leak/Fuel Spillage	Low
25	Violence (demonstrations)	Low
26	Fire	Low

The following is the description of the top 11 hazards identified for contingency planning.

Cholera: The burden and impact of cholera epidemics are great in Africa, especially in sub-Saharan Africa. Cholera is endemic in Malawi with seasonal and sporadic outbreaks. The Case Fatality Rate for the 2021/22 season was 2.9% (Ministry of Health – Public Health Institute of Malawi).

Table 4: Magnitude of Cholera over a period of 5 years

Year	Number of cases	Deaths	Case Fatality Rate (%)
2017/18	939	32	3.4
2018/19	26	1	3.9
2019/20	3	0	0
2020/21	2	0	0
2021/22 (20th October)	5,029	147	2.9

COVID-19: Corona virus disease (COVID-19) is an infectious disease caused by a newly discovered corona virus . It was declared a Public Health Emergency of International Concern on 30th of January, 2020 and later a pandemic on 11th March, 2020. As of 20th October, 2022 by WHO. Malawi had reported 88,065 confirmed cases and 2,683 deaths (Case-fatality Rate: 3.05%). The attack rate is at 469/100,000 of the population (based on hospital reported cases). The pandemic has put pressure on the health service in many ways; disruption of transport systems for health commodities that led to stock out of some commodities and an increase in oxygen uptake. Over 3,078 health workers had suffered from COVID-19 by 20th October, 2022 and 24 had died from the disease, thus exerting a lot of pressure on the health workforce. COVID-19 testing was done using PCR machines that were primarily meant for HIV viral load monitoring and this had a foreseeable impact on HIV services.

Rabies: In Malawi, nearly 500 people are treated for suspected rabies each year. In 2020, there were 3,054 dog bites reported in the country. There are more than 940,000 dogs in the country and only 62% are vaccinated against rabies annually. The vaccine coverage of 70% of dogs is necessary to protect more than 16.4 million people in Malawi from dog-mediated rabies.

Measles/Rubella: Measles is a highly infectious viral disease for which humans are the only reservoir. In 1980, before widespread vaccination, measles caused an estimated 2.6 million deaths each year globally. It remains one of the leading causes of death among young children globally, despite the availability of a safe and effective vaccine. Approximately 207,500 people died from measles in 2019 – mostly children under the age of five.

Rubella is a contagious viral infection that occurs most often in children and adults. There is no specific treatment for Rubella but the disease is preventable by vaccination.

Between 2015 and 2020, Malawi has had several confirmed measles outbreaks reported and with the highest number (17 cases) of cases reported in 2019. For Rubella within the same period, there were a total of 126 cases; the highest number being 97 cases in 2015. The introduction of Rubella vaccine in 2015 has contributed to reduced number of cases over the years.

Floods: Flooding is the commonest disaster in Malawi, estimated to account for about 40% of all recorded disasters. Between 1967 and 2022, 23 incidents of severe flooding have been reported. The January/February 2015 floods affected some 1.1 million people in Nsanje, Chikwawa and Phalombe, displacing 230,000 and leading to 342 fatalities. In 2019, Tropical Cyclone Idai submerged vast regions of Southern Malawi, displacing 86,980 people. This was the worst natural disaster in Southern Africa in 20 years. The almost annual flooding occurrences significantly impact livelihoods as they directly affect income generated from agriculture, damage infrastructure and impact local communities' social, economic, cultural and psychological values. The projected future increase in the frequency and intensity of extreme weather events in the region coupled with a lack of coping capacity mean that this situation will worsen unless more effective flood risk management strategies are devised.

Tropical Cyclone/Stormy Rains/Hailstorms: Malawi is vulnerable to the impacts of extreme weather events given its location along the Great Rift Valley, rapid population growth, unsustainable urbanization, climate variability and change, and environmental degradation among others. The commonest weather-related shocks affecting Malawi are floods emanating from cyclones/stormy rains.

Cyclones/stormy rains may be defined a system of winds rotating inwards to an area of low barometric pressure, with an anticlockwise or clockwise circulation, a depression. Cyclones can either be tropical, polar, mesocyclone extra tropical. If not properly managed, cyclones/stormy rains may have devastating effects on the socio-economic livelihoods.

In Malawi, cyclones/stormy rains usually result in floods. Several districts are categorised as hot spots. These are Nsanje, Chikwawa, Mulanje, Phalombe, Zomba, Karonga, Nkhatabay, Rumphu, Salima, Lilongwe, Dedza, Ntcheu, Mangochi, Machinga, Nkhotakota, Blantyre, Balaka, Thyolo.

Most of cyclones that affect Malawi are tropical Cyclones normally formed in the Mozambique Channel and drift to Malawi. For instance, on 5th March, 2019 cyclone Idai caused heavy rains accompanied by strong winds. The heavy and persistent rain led to severe flooding across some districts in southern Malawi. More than 868,900 people were affected, including more than 86,980 displaced, with 60 deaths and 672 injuries.

The cyclones/stormy rains result in damage to infrastructure, including health facilities, houses, roads, bridges and the safe water points leading to most people living in Internally Displaced Persons (IDP) sites such as schools, churches, community buildings and other temporary shelters. Generally, these IDP sites are overcrowded. Consequently, there are limited basic services such as safe water, sanitation and hygiene facilities, raising concerns over possible disease outbreaks.

There are challenges with protection issues among women and girls leading to high incidents of violence against women and girls including sexual harassment, sexually transmitted infections and unplanned pregnancies.

Viral Haemorrhagic Fevers (Ebola): Although no Ebola Virus Disease (EVD) case has so far been detected in Malawi and in the countries that share borders with Malawi such as Mozambique, Zambia and Tanzania, considering the porous borders, risk of EVD spreading to Malawi is high. The Democratic Republic of Congo has reported 12 outbreaks of EVD since 1976. Given the brisk trade, international travel and humanitarian crises due to insecurity, natural disasters prevalent in the Southern Africa region and participation in the peace keeping mission to DRC, the risk of EVD spreading to Malawi remains high. Malawi has initiated efforts to prepare against the potential outbreak of the infection and has conducted a simulation exercise (2019 in Karonga and Chitipa) to provide policy makers, responders, and funders with a comprehensive picture of where and what kind of interventions and equipment are in place.

Typhoid fever: Typhoid fever is endemic in some parts of Malawi. Outbreaks are usually reported in Blantyre, Zomba, Neno and Mchinji districts. Neno district experiences frequent outbreaks with the most serious one in 2010 which claimed 45 lives. In December 2020, the district reported an outbreak of typhoid fever, with 89 cases and 5 deaths. In 2021, the country reported 284 cases from, Rumphu, Mzimba North, Mzimba South, Blantyre, Neno, Nsanje, Thyolo, Mangochi, Zomba.

Poliomyelitis: Poliomyelitis is a disabling and life-threatening disease caused by the poliovirus. About 1 in 200 poliovirus cases result in irreversible paralysis. The virus is most often spread by the faecal-oral route. All cases of Acute Flaccid Paralysis (AFP) among children under fifteen years of age are reported and tested for wild poliovirus or vaccine-derived polioviruses. In 2021, Malawi detected and reported 134 AFP cases, with a non-polio AFP rate of 1.5/100 000 u-15 population and stool adequacy rate of 90%.

The most recent confirmed Wild Polio Virus (WPV) in Malawi was reported in February 2022, 10 years after the last case was reported in 1992. Three cases of Circulating Vaccines Derived Polio Virus (cVDPVs) have also been reported in the country with the last case onset of paralysis in August 2022. The Polio Certification Document for Malawi was presented and accepted by the African Regional Certification Committee (ARCC) in October 2005. Subsequent to that, each year NCC/Malawi submits annual polio updates reports to the ARCC and has maintained its commitment and efforts towards the global goal of polio eradication.

The primary preventive measure for oral Poliomyelitis is the Bivalent Oral polio vaccine and Inactivated Polio Vaccines. These vaccines work against all the three sero-types of polio; type 1, 2 and 3. The coverage for OPV3 has been sustained above 90% at National level for a period of 3 years. In 2020, 5 districts had OPV3 coverage < 80% compared to 2019 in which 6 districts had OPV <80%. The country introduced IPV in 2018 and its coverage has picked up in 2020 with more than 80% of the districts attaining coverage of more than 80% and the national IPV coverage has reached 91%.

In June 2021, the Global Polio Eradication Initiative (GPEI) launched the [Polio Eradication Strategy 2022-2026](#) to overcome the remaining challenges to ending polio, including setbacks caused by COVID-19. While polio cases have fallen 99.9% since 1988, polio remains a Public Health Emergency of International Concern (PHEIC) and persistent barriers to reaching every child with polio vaccines and the pandemic have contributed to an increase in polio cases several parts of the world (WHO).

Monkeypox (MPX): Monkey Pox is a rare, viral, *zoonotic orthopoxvirus* disease that has a similar but milder disease presentation as (now eradicated) smallpox in humans. It is usually a self-limiting disease but the case-fatality rate can be up to 10%, particularly among children.

Human Monkey Pox was first identified in humans in 1970 in the Democratic Republic of Congo which remains the country that routinely reports the highest number of cases (>1,000) annually since 2005. Other countries that have reported human cases since 1970 include Sierra Leone, Liberia, Cote d'Ivoire, Nigeria, Cameroon, Gabon, Republic of Congo, Central African Republic and Sudan (in an area that is now South Sudan). Since late 2016 there have been increasing reports of MPX cases from countries that have not seen any for the past 40 years.

Monkey Pox is an emerging disease which has become the most prevalent *orthopox* virus since the global eradication of smallpox that was declared by the World Health Assembly in 1980. This is partly because smallpox vaccination which was cross-protective for other *orthopoxviruses* was discontinued at the time which means younger people no longer have vaccine-induced immunity.

Humans contract the virus from infected animals like non-human primates and rodents, infected humans or contaminated materials. Human-to-human transmission occurs by close contact with lesions, body fluids, respiratory droplets and contaminated materials such as bedding. Human-to-human transmission is limited (no evidence that this mode of transmission alone can sustain monkey pox in human populations) and occurs via prolonged contact with respiratory droplets and contact with lesions or bodily fluids that contain the virus. Household members and health care workers are at highest risk during an outbreak.

The incubation period of monkey pox is 6-16 days (range 5–21). WHO declared Monkey Pox a PHEIC on 23rd July, 2022. As of 31st August 2022, a total of 3,066 suspected cases, 483 confirmed cases including 107 deaths have been reported from Africa in 11 member states. Countries reporting MPX in Africa include Cameroon, DRC, Ghana, Liberia, Nigeria, Sudan, Morocco, CAR, Benin, Congo, RSA etc.

Although Malawi has not detected any case of MPX since the declaration of MPX as a PHEIC by WHO, the risk remains high due to international trade and travel, and that several countries in the region have reported cases of MPX, Malawi is still at risk of this outbreak. Malawi national risk mapping exercise categorized MPX as a moderate hazard based on the country's low coping capacities due to unavailability of guidelines and policies.

Road Traffic Accidents: Road Traffic Accidents (RTA) are categorized into five (5) categories namely fatal, serious, minor, damages only and those involving animals. Fatal and serious RTAs are considered the most dangerous amongst the five since there is loss of life and seriously injuries respectively. In 2021 a total of 9,416 RTAs were recorded while in 2020 a total number of 10,799 RTAs was recorded.

In 2021, a total number of 1,444 people died in RTAs, 755 people suffered serious injuries. On the other hand, a total of 3,807 minor RTAs were reported, injuring 6,019 people.

3.0 Existing Resources and Coordination Mechanisms

3.1 Existing legal frameworks and arrangements for emergencies

International Agreements	Legislations	Plans, Strategies and Guidelines
International Health Regulations (IHR) of 2005	Public Health Act (1948)	National Rabies Control Strategy(DRAFT)
Paris Agreement on Climate Change	Pesticides Act (2002)	Malawi Animal Welfare Guidelines (2019)
Global Health Security Agenda (GHSA)	Biosafety Act (2000)	Malawi Public Health Institute Strategic Plan (2018-2022)
International Atomic Energy Agency	Environment Management Act (2017)	Integrated Disease Surveillance and Response Guidelines
Sendai Framework for Disaster Risk Reduction (2015- 2030)	Control and Animal Diseases Act (1967)	National Action Plan on Anti-Microbial Resistance
	Atomic Energy Act (2011)	Cholera National Preparedness Plan (2021-2022)
	The National Disaster Preparedness and Relief Act (1991)	Guidelines on COVID 19
		The Health Sector Strategic Plan (2017- 2022)
		The Livestock Developments Strategy for Africa (LiDeSA) 2015-2035

		National TB Strategic Plan 2020-2025
		National Disaster Risk Management Policy 2015
		National Environmental Health Policy
		National Multi-hazard Contingency Plan 2022-2023
		National Adaptation Plan on Climate Change
		Disaster Risk Management Communication Strategy (2021)

2.4 Existing Routine And Emergency Coordination Mechanisms

2.4.1 Coordination Mechanisms Within the Health Sector

Coordination within the ministry level flows from the Minister of Health to the Secretary for Health who gets support from the Chief of Health Services - a technical officer responsible for monitoring technical functions of the ministry and the Principal Secretary for administration.

The Secretary for Health is an overall officer responsible for management of the functions of the ministry. The Directors report to him/her directly. The Chief of Health Services is responsible for providing guidance on technical issues in the ministry.

At the ministry level, there is a senior Management Team (SMT) responsible for coordinating the general performance of the ministry and approves proposed policies and guidelines on health care delivery.

The Secretary for Health chairs the health cluster which is at the strategic and policy level for public health emergencies. The Health cluster is co-chaired by the WHO Country Lead. It consists of members from different sectors and development partners.

The directorate responsible for coordinating public health emergencies within the ministry is the Public Health Institute of Malawi (PHIM), which also serves as the National IHR Focal Point (NFP) for Malawi. Other directorates support PHIM in responding to public health emergencies and the ministry works with the local government, where district health offices report to, at the implementation level.

The Public Health Institute of Malawi leads the Public Health Emergency Operations Centre (PHEOC), which consists of members from different sectors and development partners. Primarily,

the PHEOC meets regularly and reports to the Health Cluster. In the event of a public health emergency as declared by the Minister of Health, the Public Health Emergency Operations Centre (PHEOC) deploys the National Rapid Response Team (NRRT) to provide tactical support to respond to the public health emergency. PHIM coordinates with district Public Health Emergency Management Committee (PHEMC) to expand the response at the operational level after each specific function.

2.4.2 Reporting and Response to an Emergency

A notification from a source of emergency is sent to the health facility. The facility in charge notifies the district, which reports to Public Health Institute of Malawi at the national level, within 24 hours. At the district level, the District Commissioner immediately activates the PHEMC, the district PHERRT is deployed from PHEMC to conduct situational analysis and grade the level of the event. Whilst at the national level, PHIM activates the Public Health Emergency Operation Centre (PHEOC) (Command and Control centre and similar coordinating structures are activated at district level). At the district, the District PHERRT is deployed in the field to investigate and respond to the reported event. When there is a need, the district requests for support from the national level, for example, a district will request for support from the National Rapid Response Team. During the emergency, PHEOC meets at least daily at the beginning of the emergency or event and weekly as the response continues. At the national level, the EOC schedules sharing of information, SITREPS and risk communication to the public and the World Health Organisation (WHO).

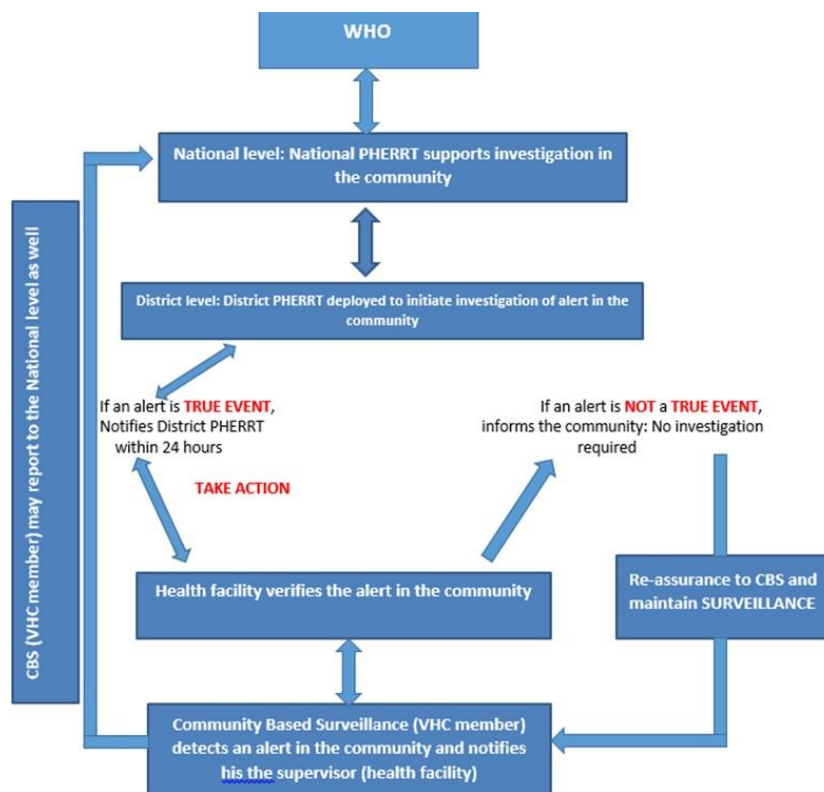


Figure 4: Flow of Communication during a PHE

2.4.3 Coordination Mechanisms with Non-Health Stakeholders

The non-health stakeholders are incorporated at all levels of the various committees described above. The composition of PHEMC at district level and the Health Emergency Technical Committee (HETC) at national level includes multi-sectoral stakeholders such as police, immigration, MRA, and Education.

2.4.4 Coordination Mechanism with One Health Stakeholders

Additionally, the health component takes the One Health approach with animal and environmental health stakeholders. The health cluster level includes all the relevant health partners and the interaction with non-health stakeholders at this level meets at the National Disaster Preparedness and Relief Committee (NDPRC) level with all cluster representatives such as security, social protection, food security and education clusters.

2.4.5 Emergency Fund

Emergency fund is a central pot of money through which funds are released rapidly to disaster response sectors for early action and immediate disaster response. It is a cash reserve that is specifically set aside for unplanned expenses or financial emergencies.

In Malawi, there is a National Disaster Preparedness and Relief Fund which has been established by Act of Parliament for management of funds during emergencies/disasters. The Fund consists of funds received directly from treasury, by way of voluntary contributions, donations from foreign governments, international agencies or foreign institutions.

Emergencies in Malawi are coordinated by the Office of the President and Cabinet (OPC) through the Department of Disaster Management Affairs (DODMA).

The main challenge that is encountered is lack of adequate funds for implementing preparedness, response and recovery interventions. It is just an indicative budget without readily available funds. The Ministry of Health needs to find mechanisms for improving access to funds for departments which work in emergencies so that they respond quickly.

2.5 Emergency Coordination Functions

The following emergency coordination functions exist:

2.5.1 Human Resources, Surge Capacities and Health Partners

Human resource for responding to public health emergencies is available at community, health facility, district and national level. Though gaps are there, the government of Malawi has continued to improve human resource for health by hiring and training of personnel.

The country has a mechanism for deploying staff from less burdened facilities to those with high burden during emergencies. Mechanisms are also in place for recruiting surge staff to affected areas.

Ministry of Health works with both international and national partners in delivering health services. During emergencies, the health partners play a critical role of providing technical and financial assistance to the government and contribute to surge capacity.

2.5.2 District and National Surge Mechanisms

The management teams at district level have the responsibility of deploying existing staff from the areas not affected by an emergency to those affected. International partners also deploy surge staff from other countries to support the national response to emergencies.

2.5.3 National Public Health Rapid Response Teams

National Public Health Rapid Response Teams (NRRT) are multidisciplinary and multi-sectoral teams which provide technical support to the overall emergency coordinating committees like PHEOC and Health Cluster. They support these committees with risk assessment, outbreak investigation reporting, emergency management and outbreak control. They work in coordination with the district level which is at the operational level. During an emergency, the NRRTs are deployed within 24 - 48 hours. Selection of members into the NRRTs depends on the nature of the emergency. Each member of this team has a specific role to carry out. See section 3.2.1 for more details regarding membership, and roles and their responsibilities.

2.5.4 National and International Emergency Medical Teams

1) National Emergency Medical Teams (N-EMT)

N-EMT will beef up the District Medical Emergency Team to provides immediate basic outpatients and in-patients clinical services focused on basic trauma care, communicable and non-communicable diseases

The purpose of the N-EMT is to improve the timeliness and quality of health services provided by the District Emergency Medical Teams. N-EMT will offer support to enhance the capacity of the district health systems in leading the activation and coordination of the rapid response capacities in the immediate aftermath of a disaster, outbreak or other emergencies. The team is mainly composed of health professional (doctors, nurses, paramedics etc.) with the proven experience in humanitarian crises (emergency and trauma care, control of communicable diseases) and are familiar with the national operation procedures in emergency. Types of EMT include:

Type 1:

- a) Mobile Team; provides care for stabilization of acute trauma and non-trauma presentations,

referrals for further investigations or in-patient care and community- based primary care with the ability to work in multiple locations over the period of deployment.

- b) Fixed Team; provides care for acute trauma and non-trauma presentations, referrals and ongoing investigations or in-patient care and community- based primary care in an outpatient fixed facility

Type 2:

Provide type 1 services plus general and obstetric surgeries for trauma and other major conditions as well as in-patient acute care.

Type 3:

Provides type 2 services plus complex referral and intensive care capacity.

Specialized Care Teams; Additional specialized can be embedded in local health care facilities type 2 or 3 unless specified otherwise, which can provide the following services; outbreak, surgical, medical rehabilitation, mental health, reproductive health and new born care, interdisciplinary, inter-hospital and technical support.

2) International Medical Emergency Team (I-MET)

I-MET helps to improve the timeliness and quality of health services provided by the National Emergency Medical Teams (N-MET). It enhances the capacity of the national health systems in leading the activation and coordination of the rapid response capacities in the immediate aftermath of a disaster, outbreak or other emergencies. The team is mainly composed of health professionals (doctors, nurses, paramedics etc.) with the proven experience in humanitarian crises (emergency and trauma care, control of communicable diseases, etc) and are familiar with international operation procedures in emergency. In accordance to WHO requirements, I-E-MT provides immediate basic outpatients and in-patients clinical services focused on basic trauma care, communicable and non-communicable diseases and preventive care.

2.5.5 Physical Resources

Focuses mainly on two main elements, the first element involves the planning processes of healthcare units, of which a critical component is the development of a pre architectural medical functional program that defines the services to be offered and the resources required. The second element involves the supplies and utilities needed by healthcare units (e.g. electric power, water, fuels, medicinal gases, telephones, internet), which can be provided by either public services or private companies. These activities enliven the elements and allow the optimal operation of functional units or facilities, administrative services, and support services as an integrated, efficient, and effective operation.

Clinical units, administrative units, and the resources of general support services that were defined in the corresponding pre architectural medical program are distributed among the hospital buildings. Each functional unit has its own structure with respect to physical, human, material, and technological resources. The units carry out processes that transform the resources into services, the results of which are generally evaluated with indicators of quantitative and qualitative performance. Each unit receives general support services, including maintenance of architectural finishes, furniture, facilities, and equipment; cleaning and disinfection; disposal of waste; and the supply of inputs required for operation.

Malawi developed a National Health Physical Assets Managements Policy with the aim of facilitating the allocation of national resources for health facilities development and maintenance in pursuit of equal access to quality health care services for all. Health facilities and healthcare equipment have a major role to play in enabling health service delivery. However, in Malawi these do not only represent a major investment in capital outlay but are also expensive to run and maintain. The policy highlights priorities and targets based on the exhaustive analysis of the current distribution and condition of health facilities nationwide. The policy in line with the HSSP-III critically emphasizes the need to upgrade, rehabilitate and maintenance of all health care infrastructure and consistence maintenance of all medical products and equipment with the aim of improving the availability, accessibility and quality of health infrastructure and medical equipment at all levels of health care.

2.5.6 Health Facilities

Health services in Malawi are provided by public, Private For Profit (PFP) and Private Not For Profit (PNFP) sectors. The public sector includes all health facilities under the Ministry of Health (MOH), district, town and city councils, Ministry of Defence, Ministry of Internal Affairs and Public Security (Police and Prisons). Health services in the public sector are free-of-charge at the point of use

The PFP sector consists of private hospitals, clinics, laboratories and the PNFP sector comprises of religious institutions, non-governmental organisations (NGOs), statutory corporations and companies. The major religious provider is the Christian Health Association of Malawi (CHAM) which provides approximately 29% of all health services in Malawi (MSPA 2014). Most private and private- not-for-profit providers charge user fees for their services. Table below shows the distribution of health facilities by type and ownership.

2.5.7 Laboratory Networks

Malawi human laboratory services are provided through a network of laboratories at different levels of service delivery, such as primary, secondary and tertiary. However, depending on their capacity if certain tests cannot be done at the designated level, the samples are referred to the next level of the laboratory network. There are certified courier services that have been contracted so as to transport samples as per international regulations. This is clearly defined in the national

sample transportation guidelines. Please refer to Table 7 that describes the different levels of laboratories and their functions.

There is currently a formal liaison with a regional laboratory in South Africa (National Institute of Communicable Diseases – NICD) to conduct specialized testing in situations where the country does not have capacity. The Malawi Laboratory network incorporates government laboratories (Including Veterinary laboratories), academic institutions, faith-based institutions and private-owned laboratories.

Malawi also has a functional Veterinary Laboratory System at Regional and the Central level. The Central Veterinary Laboratory also acts as a Veterinary reference lab with defined roles and responsibilities. These laboratories are able to provide various types of tests and are the only labs that provide rabies confirmatory diagnosis for animals and humans. Some districts have laboratory infrastructure that are largely non-operational and have had capacity to conduct parasitological functions. Private veterinary clinics and laboratories are emerging. As described above, the veterinary laboratories also have a standardised sample referral system, where if a laboratory is not able to perform the test, samples are referred to the next level which mainly is the Central Veterinary Laboratory. World Organization for Animal Health (WOAH) has designated laboratories which are centers of excellence in the region where specialised tests which our laboratories are not able to perform are sent to these centers for analysis i.e Onderstepoort in South Africa and Botswana Veterinary Institute. The sector lacks a reliable sample transportation system. The Malawi laboratory network participates in internal and external quality assurance schemes and different levels of testing. Quality management systems are implemented at all levels of the laboratory to ensure delivery of quality laboratory testing.

2.5.8 Strategic Health Stockpiles

Strategic National Stockpile are part of the emergency response infrastructure and supplement medical counter measure needed by the state during public health emergencies. The supplies, medicines, and other devices for life saving care contained in the stockpile can be used as a short- term, stopgap buffer when immediate supply of these materials may not be available or sufficient. Health Technical Support Services (HTSS) in the Ministry of Health is responsible for effective and sustainable stockpiling of medical supplies to availability of needed services along the continuum of care where needed for patients and any (unforeseeable) place and point in time;

2.5.9 Blood Banks

The Ministry of Health recognizes the importance of blood transfusion in the health care delivery system. It further appreciates the threat to life in the face of insufficient blood or unsafe blood, thereby emphasizing the need for adequate and safe blood supplies for all in need. The role of voluntary non-remunerated blood donors in ensuring blood safety and adequacy is well appreciated. The government encourages altruism in our people for us to prevent deaths that occur as a result of lack or insufficient blood supply. Donated blood is a national resource that must equitably be

made available to all in need without favour or prejudice. In its efforts to improve blood transfusion safety, the Government of Malawi (through the Ministry of Health) has successfully established a National Blood Service in the name of the Malawi Blood Transfusion Service to be the key driver in ensuring availability of adequate supplies of safe blood and blood products for their appropriate clinical use. This is in line with international best practices. The Ministry of Health also recognizes hospitals in both the public and private sectors as key players in ensuring blood transfusion safety.

2.5.9.1 Strategic Health Stockpiles

A Stockpile (the Stockpile) is a strategic reserve of medicines, vaccines, antidotes, protective equipment and other medical supplies available for use during the national response to public health emergencies. Composition and maintenance of stockpile will depend on different disciplines;

Criteria for quantities of stockpiles per product group

Quantities can be defined as absolute figures or in relative terms; a relative approach will help to get a more realistic estimates of the needs.

Appropriate information sharing system; Appropriate information sharing system about the national stockpile should be established to allow a high level of transparency for all actors in the healthcare system

Periodic review of the stockpile; the periodic review should be foreseen to stress test various elements; content of the stockpile, maintenance and validity of the products, evolution of needs and innovations

2.5.10 Scope of Equipment

Epidemiological approach based on how the equipment will be used e.g., PPE, syringes
Procurement approach based on what types and quantities are needed

Approach based on the shelf life of supplies (some products need more regular maintenance than others e.g., sterile equipment

Certain products group cannot be predicted before the exact cause of the pandemic is known; such as tests, that need to be available for each new virus or bacteria or support system as these products cannot be stockpiled, PHIM might need to map and prepare for multiple possible scenarios including new pandemic

2.6 Current Response Capacity and Level of Preparedness

Malawi has initiated efforts to mitigate the effects of public health emergencies through various strategies. The emergency preparedness system has the following strengths and weaknesses as identified from the JEE in 2019:

Table 5: Strengths and Weakness of the Emergency Preparedness System

Strengths	Weaknesses
<ul style="list-style-type: none"> • Legislation (Public Health Act) in place 	<ul style="list-style-type: none"> • Review of legislation not finalised
<ul style="list-style-type: none"> • Preparedness plans in place 	<ul style="list-style-type: none"> • Preparedness plans are disease specific
<ul style="list-style-type: none"> • Multi-sectoral coordination structures at national and district level available 	<ul style="list-style-type: none"> • Inadequate Human Resource
<ul style="list-style-type: none"> • Trained Human Resource available at all levels 	<ul style="list-style-type: none"> • Coordination among one health stakeholders is weak at District level
<ul style="list-style-type: none"> • IHR coordination has been formalised 	<ul style="list-style-type: none"> • Event Based Surveillance not organised
<ul style="list-style-type: none"> • Prioritisation of hazards and threats has been done through STAR 	<ul style="list-style-type: none"> • Multi Hazard Plan in draft form
<ul style="list-style-type: none"> • National and district EOC are operational hence strong coordination among one health stakeholders 	
<ul style="list-style-type: none"> • Hotline established and operational 	
<ul style="list-style-type: none"> • Risk communication strategy in place Government has recruited additional staff at PHIM to boost its capacity for public health emergency preparedness and response 	
<ul style="list-style-type: none"> • Availability of laboratory capacity for animal health at regional level 	

2.6.1 Strategies for Strengthening and Maintaining Readiness are:

- **Human Resource Capacity**

The government of Malawi has continued to improve human resource for health. Hiring and training of personnel to respond to public health emergencies is implemented both in national institutions and at district level. However, there is absence of epidemiologists at district council level human resource structure.

- **Development of Laboratory Capacity**

There is a laboratory network which is able to support confirmation of priority diseases. This network is linked to the regional network e.g. National Institute for Communicable Diseases (NICD) which acts as a referral laboratory for specialised tests including External Quality Assurance (EQA)

- **Electronic Data Collection**

A One Health Electronic Surveillance Platform (OHSP) has been developed and introduced in the country to leverage digital solutions for surveillance. Integration of animal and human health surveillance data is in progress.

- Ministry of Health is currently rolling out Event-Based Surveillance (EBS) at all levels of the health system.
- Review of legislation to enable compliance with IHR

The Government of Malawi is reviewing the Public Health Act to align it with IHR requirements.

- Development of Multi-Hazard Emergency Preparedness and Response Plan at district and POE
 - o Contingency plans for the top hazards will be developed for districts and POE.

Chapter 3: Preparedness Surveillance and Early Warning Systems

3.1 Surveillance and Early Warning Systems

Surveillance is the ongoing systematic collection, analysis, interpretation of data and timely dissemination of information to inform public health actions. Surveillance is also essential for planning, implementation, monitoring and evaluation of public health practices/interventions (IDSR Technical Guidelines, 2019).

3.1.1 Early warning Systems

Early Warning Alert and Response Systems (EWARS) are elements of a surveillance system designed for the timely identification of public health risks, to trigger interventions and prevent epidemics and other public health emergencies. The EWARS acts a Public Health tool for detection of potential acute risk to human health occurrences of natural or man-made disasters (CDC EBS Training template, accessed 2019). Properly functioning Early Warning and Rapid Alert (EWRA) systems should have the capacity to rapidly predict or detect events with serious consequences and facilitate the rapid exchange of information among relevant stakeholders to create a timely and effective response that eliminates or reduces negative impacts.

3.1.2 Existing Epidemiological Surveillance System for Infectious Hazards

The National Public Health Institute of Malawi is the lead organisation for disease surveillance and notification. It comprises of three departments: Epidemiology and Surveillance, Research and Development and Public Health Reference Laboratory (NPHRL). NPHIM conducts surveillance, notification and response of infectious and non-infectious hazards in collaboration with various partners. These activities are guided by IDSR technical guidelines.

Routine surveillance (Indicator-Based Surveillance) within the nation is conducted following the regular weekly and monthly reporting schedules.

3.1.2.1 Infectious hazards

Infectious hazards are microorganisms (bacteria, viruses, fungi, parasites), nucleic acids or proteins that cause or are probable cause of infection in humans or animals. The categories of infectious hazards are annexed under the list of notifiable diseases in the IDSR Technical Guidelines 3rd Edition. Prevention and control of infectious hazards requires a robust disease surveillance and response system. There are various categories of disease surveillance and response systems including IDSR and disease/condition specific surveillance e.g. influenza, malaria, rotavirus, meningitis, and Covid- 19 surveillance.

3.1.2.2 Integrated Disease Surveillance and Response (IDSR) Strategy in Malawi

Malawi uses the Integrated Disease Surveillance and Response (IDSR) Strategy, developed by World Health Organization for the African Region (AFRO), for improving epidemiologic surveillance and response. Within the IDSR framework, Malawi implements IHR (2005) to strengthen its capacity for surveillance and control of public health events of national and international concern. The objective of IDSR is to improve the capacity of districts to detect and respond to diseases and conditions that cause high levels of illness, death and/ or disability in catchment areas. In 2001, Malawi adapted the IDSR strategy and was rolled out to all the districts in 2003. The second and third editions of IDSR guidelines were adapted in 2014 and 2020 respectively. The country is in the process of rolling out the IDSR trainings to all the districts. Unlike the initial edition which only covered diseases of public health importance, the 3rd edition of IDSR has expanded the scope to cover diseases, conditions, and events of public health importance using the “**One Health Approach**”. One Health is a collaborative, multi-sectoral, and trans-disciplinary approach working at local, regional, national and global levels to achieve optimal health outcomes using the interconnection between human, animals, plants and their shared environment.

3.1.2.3 Approaches for Implementing Disease Surveillance

The following are the two approaches for implementing disease surveillance in Malawi:

- i. **Indicator-Based Surveillance (IBS).** Routine notification of priority diseases from healthcare facilities. Data of patients/people who come to a health facility for care are extracted from registers and compiled into reporting forms for reporting into the DHIS-2. This is conducted weekly from health facilities to districts, and districts to National level through DHIS-2. The data is analysed by a national IDSR focal person at PHIM and disseminated through the weekly bulletin and newsletter.
- ii. **Event-Based Surveillance (EBS).** ‘Unstructured’ intelligence (rumours and alerts) are reported or picked through any available means of communication and subsequently verified for action. Event verification occurs at the lowest level where capacity exists and is undertaken by individuals with the necessary skills and experience. EBS guidelines for Malawi were adapted in 2021 and are being rolled out to the districts for comprehensive implementation.

3.1.2.4 Other Types of Disease Surveillance

There are other methods of collecting alerts from public health events, that feed into the above routine surveillance systems:

Community Based Surveillance: Communities are sensitised of public health risks and empowered to detect and report events which may constitute a risk to public health using community case definitions. The 3rd edition of IDSR has strengthened this component which is also vital in EBS. Malawi has various cadres of community health workers which include health surveillance assistants (HSAs), community nurses, assistant environmental health officers who are key players to community-based surveillance.

Laboratory Based Surveillance: Successful detection, characterization and tracing of disease transmission is essential for prevention and control of public health events and requires an effective laboratory-based surveillance system. The purpose of laboratory-based surveillance is to address following among others:

- a. Support disease programs through confirmation of disease-causing pathogens and food safety certification
- b. Provision of trainings and quality assurance
- c. Monitoring existing, emerging and re-emerging pathogens
- d. Monitoring of drug resistance pathogens (special focus on antimicrobial resistance, HIV , Malaria and TB drug resistance)
- e. Provide early warning signals for public health events

There are various testing laboratories that support disease surveillance in human health at different levels of service delivery. These include public health reference laboratories and clinical laboratories based at health facilities that play public health functions. The public health reference laboratory at the national level includes the National Microbiology, HIV, TB, Parasitology, and Nutrition Reference Laboratories.

Table 6: PHIM Laboratory Network

Type of Lab	Lab Name	Location	Biosafety Level	Testing Capacity	Core Functions
Reference Laboratories on Human Health	National HIV Reference Laboratory		Biosafety Level II	<ul style="list-style-type: none"> ➤ TB, HIV, ➤ Bacteriology, Mycology ➤ Antimicrobial resistance detection ➤ Molecular testing 	<ul style="list-style-type: none"> ➤ Outbreak response ➤ Proficiency testing on HIV, TB, Bacteriology, Malaria related samples
	National TB Reference Laboratory		Biosafety Level (BSL) III for National TB Reference		
	National Microbiology Reference Laboratory		Biosafety Level II		

	National Parasitology Reference Laboratory		Biosafety Level II		
	National Nutrition Reference Laboratory		Biosafety Level II		
Reference Laboratories on Animal Health	Central Veterinary Laboratory (CVL) in Lilongwe and other		BSL II	<ul style="list-style-type: none"> ➤ Rabies ➤ Bacteriology ➤ Antimicrobial resistance detection 	Capacity
	Regional Laboratory Blantyre		BSL I		
	Regional Laboratory Zomba		BSL I		
	Regional Laboratory Mzuzu		BSL I		
Central Hospital Laboratories in Human Health	QECH		BSL II	<ul style="list-style-type: none"> ➤ TB, Malaria, HIV ➤ Bacteriological testing ➤ Molecular Testing ➤ Haematology, Clinical chemistry ➤ Microscopy 	<ul style="list-style-type: none"> ➤ Non-infectious disease diagnosis ➤ Sample packaging and transportation ➤ Culture and sensitivity testing ➤ Molecular testing on HIV samples
	ZCH				
	KCH				

Central/ Regional Laboratories on Animal Health	Central Veterinary Laboratory (CVL) in Lilongwe and other regional laboratories in		BSL II	➤ Rabies	Capacity Boosting; Processing of human samples for toxicology tests
	Regional Laboratory Blantyre		BSL I		
	Regional Laboratory Zomba		BSL I		
	Regional Laboratory Mzuzu		BSL I		
District Laboratories on Human Health	25 district hospital laboratories		BSL II	➤ TB, Malaria, HIV, etc	Disease Diagnosis
District Laboratories on Animal Health	Thyolo				Sample Packaging and transportation
	Zomba				
	Dedza				
	Kasungu				
	Karonga				
Mzimba South					
Primary Laboratories on Human Health				➤ TB microscopy and testing ➤ Malaria rapid test kit testing	Sample Packaging and transportation
Primary Laboratories on Animal Health					Sample Packaging and transportation
Academic Laboratories	LUANAR		BSL II		Teaching Labs and Research
	UNIMA				
	MUBAS				
	KUHeS				
	MZUNI				
	MUST				

Animal Health Laboratory Based Surveillance: There are three functional laboratories performing disease surveillance and these include Central Veterinary Laboratory, Mzuzu Regional Veterinary Laboratory and Blantyre Regional Veterinary Laboratory. Disease surveillance is also conducted in eight abattoirs and other designated slaughter facilities country-wide during meat inspection.

The Animal health sector performs routine testing for the diseases including rabies, anthrax, Foot and Mouth, African Swine Fever etc:

Zoonotic Health Surveillance: The Department of Animal Health and livestock development in the Ministry of Agriculture conducts animal health surveillance for early detection and monitoring of trends in improvements of animal health welfare. Important conditions under surveillance include Rabies, Anthrax, Foot and Mouth Disease, African Swine Fever, Rift Valley Fever, Brucellosis, Highly Pathogenic Avian Influenza (HPAI) and Antimicrobial Resistance. The department employs Active surveillance in which it conducts active case finding of important animal diseases in communities. Passive (syndromic) surveillance is conducted routinely and relies on farmers to report events/signals/indicators to the animal health officials in the communities concerning the health of their animals.

Under passive surveillance, community members report any event through Animal Health Surveillance Assistants (AHSAs) who are positioned in communities. The AHSAs report to the District Animal Health and Livestock Development Officer (DAHLDO) who in turn reports to the national level for action. Screening of events/signals is done at every level so that only important events are reported to the ONE HEALTH platform. The department has a mobile application which the AHSAs use to report events to the national level. The Rapid Response Team then is deployed to conduct investigations and if necessary collect samples for laboratory confirmation.

Food-Borne Surveillance: The full burden of food borne diseases in Malawi is not comprehensively documented. The food borne diseases of interest include those caused by harmful bacteria, viruses, parasites, toxins and chemicals. Surveillance is routinely done on diarrhoeal diseases through the IDSR system and reported in DHIS2. Cholera, dysentery, typhoid are priority diseases under surveillance in the IDSR. HSAs report any cases of food poisoning in the community to the health facilities and district for investigation and confirmation. Where food poisoning is suspected, samples are collected and sent to relevant regional and district laboratories for confirmation in the location. The National Public Health Reference Laboratory confirms the bacterial pathogens isolated at the district lab. While the Central Veterinary Laboratory confirms both microbiological and chemical analyses sent from regional laboratories. Aflatoxin related samples are analysed at the Department of Agriculture Research Services (DARS) laboratories i.e. Chitedze Research Laboratory.

Chemical/ Radio-Active Surveillance: In the event of a suspected chemical, radiological, or nuclear incident, the issue is reported by the public to either the Environmental District Officer of the district or to the Atomic Energy Regulatory Authority (AERA) or the Environmental Affairs

Department Headquarters or the EBS hotline number 929. The Rapid Response Team then investigates the incident and if required a team of chemical/radio-active specialists is dispatched to conduct further investigations of the incident. Samples are collected at the time of investigations for analysis at the Central Water Laboratory and the Malawi Bureau of Standard (MBS).

The MBS has capacities to monitor and conduct chemical analyses in food and environmental media. Specifically, the National Radio-analytical Laboratory established within the MBS is building its capacities and capabilities in analysing samples to identify radionuclides. This will be useful in the event of radiological or nuclear emergencies where samples will be analysed to identify the type of radionuclides and will support the public health response in times of such emergencies. In addition, AERA has capabilities to monitor and detect radiation which can support the implementation of the radioactive surveillance programme in the country.

Sentinel Surveillance: This type of surveillance is conducted at specific sites or in specific populations and may be passive or active. Instead of reports on a specific condition provided in traditional active or passive surveillance, with sentinel surveillance only specific hospitals, sites or providers report on the condition. Sentinel surveillance system selects, either randomly or intentionally, a small group of people representative of the population from whom to gather data.

For example, sentinel influenza surveillance collects nasopharyngeal swabs from each patient at selected sites to identify the type of influenza virus. Currently in the human health sector there are sentinel sites for Rotavirus at Queen Elizabeth Central Hospital, HIV and Malaria at CHSU, and COVID-19 in 5 high burden sites. In animal health there are no functional sentinel sites. However, these are established during an outbreak, near the epicentre of the outbreak for monitoring.

Surveillance at Point Of Entry: Malawi has 36 official points of entry (POE) which include ground crossings, water (lake) port and two international airports. However, the country is in the process of designating 4 POEs. There are Port Health Officers from the Ministry of Health and Plant and Animal Health Officers from the Ministry of Agriculture at selected points of entry who conduct screening of travellers entering the country, and screening of animals and plants being imported into the country respectively for detection of public health conditions/animal diseases reportable under IDSR/IHR (2005). Data collected at the POEs is submitted to the respective ministries using designated reporting forms. The MoH uses the One Health Surveillance Platform (OHSP) for reporting surveillance data from PoEs to the national level. Events requiring attention are investigated by the RRTs from both ministries deployed by the district health office. There is provision of quarantine facilities at some selected POEs which are used to support investigation by RRTs. Where necessary, samples are collected for confirmation in laboratories.

PoEs will develop PoE specific contingency plans for responding to public health events at the PoE. Strategic risk assessments to identify priority hazards will be conducted to inform the development of the PoE plans. The plans will be updated periodically.

Environmental Surveillance: This type of surveillance monitors environmental samples in order to detect areas of pollution concentration/contamination as an early warning system for timely response measures. It involves systematic sampling and testing to monitor selected pathogens in designated environmental sites such as sewage or water supply systems. Malawi has country-wide environmental surveillance sites for Polio virus as well as sites for COVID-19 virus and *Salmonella typhi*.

3.1.2.5 Steps for Conducting Surveillance Detection and Reporting

Events are detected either using passive surveillance (when patients/people call at a health facility for medical care) or through active surveillance (events proactively identified by individuals in the health facilities and community are reported to the next level for action).

Frontline healthcare workers diagnose episodes of priority conditions. All health facilities (both public and private) are obliged to report to the district surveillance office using tools included in the IDSR technical guidelines. In EBS, signals are detected by the community members and, health and extension workers who then report through the formal disease surveillance structure for action.

The health facility IDSR focal persons collate disease intelligence information from health facilities and communities to report to the district where the district IDSR focal person consolidates the reports for submission to the National level using the DHIS-2 platform. The national surveillance team report to the MoH and key stakeholders.

Events needing immediate public health response (within 24 hours) are communicated to the next level (health facility to district to national) by the fastest possible means: typically, SMS, WhatsApp messaging or a telephone call and formal reporting using designated tools follows.

Verification and Confirmation

For EBS, reported signals are verified by competent health workers and reported to the district level for risk assessment and response. The events are investigated by the District Public Health Emergency Rapid Response Team (PHERRT) who conducts a risk assessment to verify extent of event and determine the extent of the emergency response. The district PHERRT is supported by the national level PHERRT as may be required. Samples are collected where necessary for confirmation at local, national reference laboratory or WHO regional accredited laboratories.

In animal health, the detection and reporting of events is similar as in human health sector as detailed in the Emergency Disease Reporting Plan for animal health event verification and confirmation procedure.

Monitoring and Evaluation

Performance monitoring is conducted at district and national level for timeliness, completeness

and the rate of reporting by facilities in the districts. Annual reviews are conducted for both animal and human health. The Joint External Evaluation (JEE) has been conducted once in 2019 and is expected to be conducted every 5 years.

Dissemination

The national surveillance team produces and disseminates a weekly epidemiology bulletin. The target audience are stakeholders at all the levels involved like; National, district, peripheral health facilities, the WHO, CDC. Daily or weekly situation reports (SITREPs) are produced in outbreaks and shared to all relevant stakeholders and published on PHIM website.

3.1.2.6 Electronic Surveillance Reporting System

The application of e-tools in the health sector has the potential to provide real-time validated data for public health surveillance, investigation and prompt outbreak response. e-IDSR is the application of electronic tools to the principles of IDSR to facilitate prevention, prediction, detection, reporting and response. e-IDSR provides new opportunities for acceleration of the achievement of the IHR (2005) core capacities. It is based on;

- Standardised interoperable and interconnected information systems administered within the national context
- Rapid collection, analysis, reporting and use of disease/events data in real-time for appropriate public health action.

While paper-based tools can also provide timely information, Malawi recognises the need and aims to have fully functional e-IDSR system to facilitate timely transmission of data to enable timely response to public health threats.

Health Management Information System (HMIS) is used in Malawi to facilitate routine collection of data to support planning, management and decision-making in the health service provision. HMIS routinely collect data about diseases, events and conditions, as well as other administrative and service provision. The primary source of the data is the health facility Outpatient (OPD), Inpatient (IPD), and programme registers. The most widely used electronic platform of HMIS is DHIS2.

One Health Surveillance Platform (OHSP) is designed to capture human, animal and environmental health surveillance data. OHSP is linked to DHIS2 and is optimized for reporting all priority diseases and events in Malawi.

For animal health, the paper-based system is in use but the digital platform for disease surveillance and reporting called Event Mobile Application has been initiated in the following districts; Chitipa, Mzimba South, Mchinji, Ntcheu, Neno and Chikwawa.

3.1.3 Early Warning Systems for non-infectious hazards

Malawi has structures at both national and district level designated to detect non-infectious hazards. For instance,

- Radiation authorities (Atomic Energy Regulatory Authority-AERA) monitor exposure and respond to radiation events;
- Meteorological services provide early warning advisories by forecasting weather and climate related hazards.
- The Roads Authority employs engineering controls such as rumble surfaces in the design and construction of roads; Traffic signposts are placed at appropriate sites along the roads. During road construction, Environmental and Social Impact Assessment are conducted where mitigation measures are identified; the Road Traffic Directorate does Vehicle Fitness Tests and drivers licensure. Traffic Police and Road Traffic Directorate regulate speed limits by placing speed traps at appropriate sites along the roads, conduct community sensitization, breathalyser tests, vehicle patrols and traffic checks.

Considering its comprehensive Early Warning System, Malawi established these reporting structures beginning from the district level to the National Level as indicated in the table below

Table 7: Early Warning System Reporting Structures

	SAFETY/ SECURITY	WEATHER AND CLIMATE SERVICES	RADIATION	ENVIR CHEMI
NATIONAL	National Operations Centre	Directorate of Climate Change and Meteorological Services	Atomic Energy Regulatory Authority	Directorate of Environmental Affairs
REGIONAL	Regional Operations Centre	Regional Meteorological Office		
DISTRICT	Stations Operations Centre	District Meteorological Office		Environmental District Office
SUB-DISTRICT	Sub-stations Operations Centre	Subsidiary Weather Stations		

The early warning systems also elaborate the type of hazards, triggers, indicators, and reporting tools /structures. Refer to the table below

Table 8: Types of Hazards, Triggers, Indicators and Reporting Structures

Hazard	Trigger	INDICATOR	Reporting Tools/ Structures	Responsible
Floods	Weather Forecast warnings and advisories,	Number of injuries/fatalities; Numbers of property damaged	Civil Protection Committee	Environmental Affairs Department; Department of Disaster Management Affairs; Department of Climate Change and Meteorological services; Department of Water Development
Road-traffic Accidents	Occurrence of Road Traffic Accidents	Number of injuries/fatalities	Police Traffic Daily Situation Report; Community	Malawi Police Service; Road Traffic Directorate
Fires	Occurrence of fires	Number of injuries/fatalities; Numbers of property damaged	Community	City Councils; District Councils; Civil Aviation, Department of Forestry
Radiation	Exposure to radiation	Number of people ill/injuries/fatalities		Atomic Energy Regulatory Authority; Environmental Affairs Department
Chemical spills	Occurrence of chemical spill	Number of people ill/injuries/fatalities	Inspection Assessment Template	Environmental Affairs Department; Atomic Energy Regulatory Authority
Fuel spillages	Occurrence of fuel spillage	Number of people or animals ill/injuries/fatalities	Assessment report/ Community leaders	Environmental Affairs Department; Malawi Energy Regulatory Authority
Earth Quake (Tremors)	Occurrence of earthquake (tremors)	Number of households affected/property damaged	Community leaders	Department of Disaster Management Affairs; District Councils; Geological Department

Dry spells	Food scarcity; Weather Forecast Report	Number of households affected/ percentage of expected yields	Community/ local leadership	Ministry of Agriculture; Department of Climate Change and Meteorological services Department of Disaster Management Affairs World Food Programme; Food and Agriculture Organization of the United Nations
Tropical Cyclones	Daily Weather Forecast warnings and advisories, Report; Heavy rains	Number of injuries/fatalities; Numbers of property damaged. Number of households/ fields affected	Community/ local leadership	Department of Meteorological services; Department of Disaster Management Affairs
Violent demonstrations	Level 2 of demonstrations	Number of properties damaged/ Injuries/fatalities	Police report	Ministry of Home Affairs; Human Rights; Malawi Police; Community Police; Malawi Defence Force

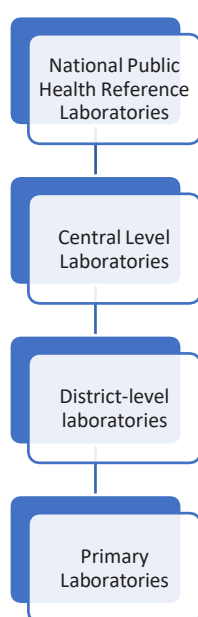


Figure 5: Hazard Reporting Structure of Laboratories for Human Health

3.2 Alert, Verification, Rapid Risk Assessment and Investigation

Alert detection occurs when information is captured from different sources by different Surveillance systems that has been verified(confirmed) to be of concern or possess potential harm to public health.

Alert generation is similar across all sectors (Human, Animal and Environment) it is an outcome of surveillance (EBS and IBS) or any other form of surveillance used by the surveillance systems. Once an alert is generated, risk assessment and grading of the alert follows to determine the needed response.

3.2.1 National and District Public Health Emergency Rapid Response Teams

A Public Health Emergency Rapid Response Team (PHERRT) is a technical, multi-disciplinary team that is readily available for quick mobilisation and deployment in case of emergencies to effectively investigate and respond to emergencies or public health events that presents significant harm to humans, animals and environment irrespective of origin or source. The PHERRT should be established at the district and national levels.

Their overall responsibilities include - conducting rapid risk assessment, investigating and responding to emergencies.

The Composition of PHERRT at National Level is as follows;

Core Members

- i. Epidemiologist
- ii. Laboratory personnel
- iii. Clinician
- iv. Nurse
- v. Environmental Health Officer
- vi. Animal Health personnel
- vii. Psychosocial Counsellor
- viii. Health Promotion officer
- ix. Public Health Officer
- x. Pharmacist

Co-opted Members

- i. Security Agency personnel
- ii. Forestry personnel
- iii. Representatives from partner organizations
- iv. Others as per required expertise

Roles and Responsibilities of PHERRT at National level

- i. Investigate reported outbreaks, and other public health emergencies
- ii. Develop an epidemic preparedness and response plan.
- iii. Stock management for outbreak response
- iv. Risk mapping for outbreaks and other public health events
- v. Collect and provide adequate data related to outbreak and public health emergencies.
- vi. Reporting on issues investigated to PHEOC
- vii. Provide support to district level PHERRTs as needed

Composition of PHERRT at District Level

Core Members

- i. Epidemiologist/Surveillance Officer
- ii. Laboratory personnel
- iii. Clinician
- iv. Nurse
- v. Environmental Health Officer
- vi. Animal Health expert (Agriculture) / Wildlife
- vii. Mental Health Nurse/Social worker
- viii. Health Promotion officer
- ix. Pharmacist Co-opted Members
 - i. Security Agencies personnel
 - ii. Forestry personnel
 - iii. Others as per required expertise

Roles and Responsibilities of Rapid Response Teams at District level

- i. Investigate reported outbreaks, and other public health emergencies
- ii. Propose and initiate appropriate control measures to stop the outbreak
- iii. Conducting risk assessment
- iv. Conduct monitoring and evaluation of effectiveness of control measures
- v. Prepare detailed investigation reports to be shared with PHEMC and national level
- vi. Contribute to preparedness assessments and the final evaluation of any outbreak response

Note: The Health Facility RRT comprises the In-Charge/clinician, a nurse, health surveillance assistants, other community structures such as village health committees.

3.2.2 Process for Activation of the PHERRTs

Response measures are triggered at district level as agreed by PHEMC under the leadership of the District Commissioner once the predetermined threshold is reached. The district then alerts the national level who in turn alerts WHO. The District PHERRT should be deployed within 24-48 hours to conduct the investigation and inform response measures. Following the investigation and confirmation of an outbreak, the District Commissioner convenes PHEMC to assess the situation, and recommend the response activities. The national PHERRTs are deployed by the national Incident Manager (IM) when an event is confirmed and graded as level 2 or 3 which means the district RRTs have limited capacity to respond and require additional assistance from the national level. Similarly, at the district level, the IM will be responsible for deploying the district PHERRT. There is a continuous flow of information from an alert provided from the community for the immediate follow-up by the health facility PHERRT to the district PHERRT and where necessary to the national level PHERRT. Depending on the level of emergency, support will be provided from the higher level PHERRTs to the lower level PHERRTs.

In terms of the information flow, for an event that is reported from the community, the facility PHERRT is the first to respond. In some cases, the scale of the event may necessitate the involvement of the District PHERRT. The District PHERRT may also request assistance from the national PHERRT as required. There is therefore a cascade of information up from the lower level PHERRT to the higher level PHERRT and a cascade of support from the National PHERRT to the districts and to the facility level PHERRT depending on the scale of the event. This flow is depicted in Figure 6 below.

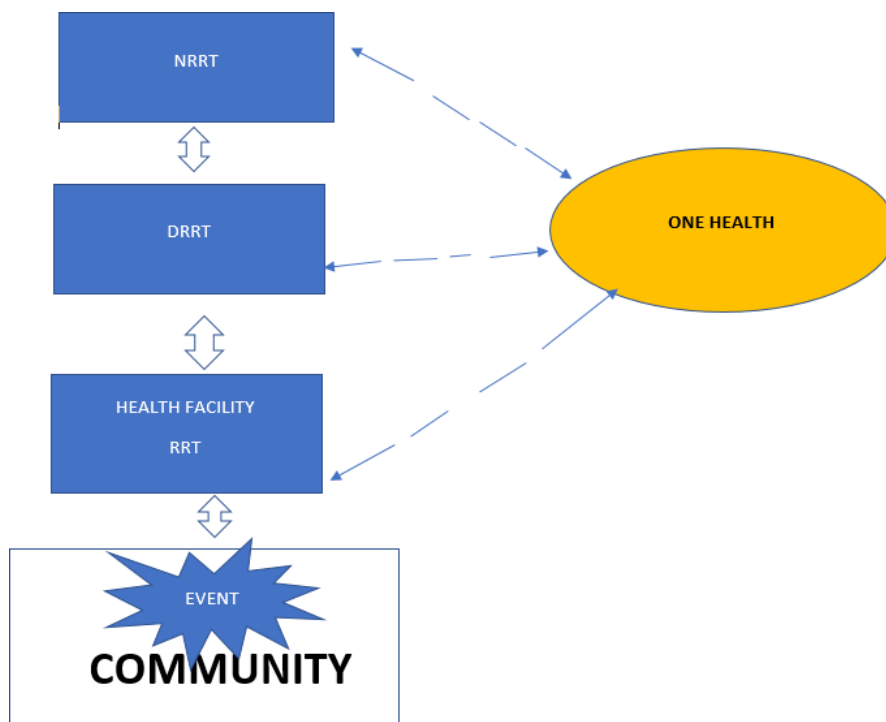


Figure 6: Flow of Information between RRTs during PHE

3.2.3 Maintenance of Rosters, and unit/responsible

For effective mobilization and coordination of the PHERRTs during any emergency, a duty roster which is a list of key players with their contact details, shall be drawn and maintained at all levels. For example, at the national level this would be done by the PHEOC, while the responsible unit for the district levels shall be the district health offices. These rosters shall be updated on a quarterly basis in case of any changes in staffing levels e.g. transfer, retirement or death

3.2.4 Training/Refresher Plan

The PHERRT will undertake regular trainings to build their capacity in order to handle different types of emergencies and to conduct rapid risk assessment. The training will include expert presentations with scenario-based skills enabling participants to apply and practice what they have learned.

3.2.5 Rapid Risk Assessment

Risk assessment is a systematic process for gathering, assessing and documenting information to assign a level of risk. Whenever a public health event occurs, the District PHERRT is quickly activated and conducts a rapid risk assessment. The initial rapid risk assessment should provide information on epidemiological (person, place and time) aspects of the event; scale, population at risk, severity of event, risk factors for the spread of the event and rate of spread, public perceptions, response measures needed and capacity available for the response, among others. The information/risk assessment report should inform the grading of the event, and the activation of the response structures at different levels.

The expected outputs of this initial rapid risk assessment will help reduce disease spread in the affected population and negative socio-economic consequences associated with outbreaks. Additionally, it will help in proper decision making, implementation of appropriate and timely control measures, improved preparedness and more effective operational and risk communication. Rapid risk assessment should be conducted by District PHERRT. The National PHERRT will provide support to District PHERRT when needed and may also conduct risk assessment to determine the level of the emergency. The risk assessment report should be completed within 48 hours of assessment. During emergencies, the situation report is sent to the IM at national level. The Ministry of Health is then expected to share the situation report and data with WHO in compliance with article 7 of the IHR (2005). The channel of communication however can apply at any level even from National to facility level.

3.2.6 Use of Initial Rapid Risk Assessment

The grading will be dependent on the risk assessment associated with the event. The District PHERRTs in conjunction with National PHERRT will be conducting rapid risk assessments. This activity will be repeated as and when necessary.

3.3. Grading of an Emergency

3.3.1 Introduction to the grading system

Grading is an internal activation procedure that triggers emergency procedures and activities for the management of the Public Health Event (PHE) response (WHO, 2017). The grading assigned to PHEs indicates the level of strategic, operational and tactical response required for that particular emergency.

The grading system is largely dependent on the risk assessment associated with the event. It takes into consideration the severity of the event and its impact in terms of population, geographical, economic and mortality. The grading helps develop a standardised way of determining the activation and response levels, the scope, capacity and capabilities required and enable a shared understanding of the event by all responders and stakeholders.

The risk assessment or situation analysis report will inform response to PHEs grading system. The district level Incident Manager and the technical team will determine the grading of the PHE using results of risk assessment provided by the district PHERRT. Upon escalation of emergency, the national Incident Manager will be responsible for the grading process through the technical team using results from risk assessment conducted by National PHERRT. The final grading will be approved by the Secretary for Health.

3.3.2 Grading Criteria

Grading of the PHE in Malawi will be dependent on the:

1. **Severity/Complexity:** Seriousness of consequences (morbidity and mortality) measured using precedent data or projected data from modelling, disruption of critical health and other services, urgency of response required including attack rate, type of PHE, risk of international transmission/spread of the infection/event, perception of community and practitioners' and experts' insight.
2. **Scale:** Type and extent of hazard, geographical areas that are likely to be affected and population settings (rural, urban, concentrated/ closed, dispersed/open setting)
3. **Vulnerability:** Characteristics and circumstances of a community system or asset that makes it susceptible to the damaging effects of a hazard. (Access to health services, health status of a population at risk, social determinants of health, presence of vulnerable groups)
4. **Coping capacity:** Ability to detect, identify and respond to a hazard and its health consequences at a given scale, functional capacity to manage caseloads in potentially affected areas, community knowledge about the hazard and risk minimizing attitudes and practices

5. **Population at Risk:** The proportion of individuals who are affected/expected to be affected by the PHE
6. **Reputational Risk:** A measure of the threat or danger the PHE poses on the reputation of the country or institution involved, influenced by political, religious, or social risk. This is a subjective/qualitative measure that will be determined by the assessment team.

3.3.3 Grading Recommendation Process

Based on the above criteria, the following grading shall apply:

Table 9: Levels of Grading of Emergencies

Level	Scale (Geographical Spread)	Severity	Vulnerability	Population at Risk*	Coping Capacity	Reputational Risk
1	One district	Low	Low	< 0.1%	High	Low
2	One or more districts	Moderate	Partial	0.1– 0.25%	Partial	Medium
3	One or more districts	High	High	>0.25%	Low	High

** this is population of the affected district*

Key

Score	Level
1-6	Level 1
7-12	Level 2
13-18	Level 3

Note: This scale will act as a guide to experts during response of a PHE. The minimum score for this scale is 6 and maximum score is 18. In situations where severity is moderate to high and/ or population risk is between 0.1-0.25% and >0.25% automatically the hazard will go to level 3. Emerging and re-emerging diseases and all diseases* or events of international concern will be automatically graded as level 3 emergency. *Human influenza due to a new subtype, SARS, Smallpox, Yellow fever, Zika virus disease.

Levels for Grading

1. Level 1

A PHE with minimal consequences and limited to one district and requires response by that particular district and does not require response at the national level.

Coping capacity is high within the district, whereas reputational risk and severity are low.

2. Level 2

One or more districts are affected by the PHE.

Coping capacity is partial within the district and severity is medium with moderate public health consequences and requires some support from the national level when the district's capacity is exceeded.

3. Level 3

One or more districts are affected, with threat of spread locally and internationally or if a PHE is declared a national disaster.

3.4 Emergency Risk Communication (ERC)

3.4.1 Emergency Risk Communication Plans

Emergency Risk Communication (ERC) is an essential part of any emergency response and it refers to real time exchange of information, opinion and advice between frontline responders and people who are faced with the threat of any emergency to their survival, health, economic or social wellbeing.

ERC involves good partnership between emergency response teams and individuals or communities in affected areas in preventing, controlling and mitigating hazards .

To effectively implement ERC, community engagement approaches is required, response teams must approach community leaders and members in a manner that seeks first to understand their perspectives, solicits their inputs, share information, and engage them in the response to the hazard.

In addition, information must be shared in a manner that allows individuals and communities to learn (receive information and ask questions) and to make informed decisions about how to protect themselves, their families, and communities.

The main objective of this risk and crisis communication plan is to foster community engagement to prevent and control the hazards that may arise.

The Objectives Risk Communication:

- a) Provide timely communication about hazards and its prevention and control.
- b) Engage in active dialogue with community influencers, networks and stakeholders in the prevention and control of hazards that may arise

Currently, there are several ERC plans:

1. The risk and crisis communication plan for COVID-19. This plan gives guidance on communication strategies in response to pandemic in the country. With the rising risk, there is need for more systematic approach to risk and crisis communication on Corona virus disease prevention and management in Malawi
2. Malawi Polio Advocacy, Social Mobilization and Communication Response Plan. This plan gives guidance on communication strategies in response to current polio outbreak in the country.
3. Risk Communication and Community Engagement Preparedness Plan for Ebola Viral Disease. It guides systematic approach to risk communication in EVDa prevention and management in Malawi
4. COVID-19 Vaccine Related Events (VRE) Response Plan. The plan ensures that there is a coordinated national plan for responding to VREs during the COVID-19 vaccination.

The ERC will be operationalised after activation of NPHEOC. The aim is to announce the public health emergency as early as possible to avoid infodemic and to manage rumours. The ERC plan will have spokesperson identified at all levels to manage communication and also it outlines the communication activities to be implemented as follows.

Table 10: ERC Communication Management Plan

Timelines	Activities	Products
Within 24 hours	Rapid assessment for social mapping	Social mapping report
Within 48 hours	<ol style="list-style-type: none"> a) Identification of spokesperson b) Orientation of spokesperson c) Early public announcement d) Develop messages, Information Education Communication, materials 	<ol style="list-style-type: none"> a) Spokesperson at all levels b) Public announcement made. c) Communication products shared to public

<p>Within 72 hours - 2 weeks</p>	<ul style="list-style-type: none"> a) Continued information dissemination b) Media briefing/press briefing c) Community engagement d) Resource mobilization for social mobilization activities e) Launch of mass public communication campaign f) Monitor rumours and address rumours g) Messages translated into different local languages 	<ul style="list-style-type: none"> a) Mass media campaign b) Resources identified to support ERC plan c) Rumours addressed.
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3.4.2 Protocol for Early Emergency Communication

When there is an emerging health threat, PHIM will investigate and issue a report on the threat to the Secretary for Health (SH). The SH reports to the Minister of Health who announces of the emerging health threat within 24 to 48 hours of its confirmation through a press briefing/statement. The statement is shared through print, social and electronic media.

3.4.3 Coordinating Public Communications and Stakeholder lists

The lead agency for public communication during an emergency is Health Education Services (HES). HES works in collaboration with Ministry of Information during disasters. HES will lead Risk Communication and Community Engagement (RCCE) response Pillar which consists of different stakeholders including International, national and community based organizations.

After the announcement, the Incident Management System (IMS) will be activated to coordinate the response. One of the pillars is RCCE which coordinates public communication at national level. RCCE at national and district level {Health Promotion Technical Working Group (HP TWG)} are responsible for dissemination of information on the threat, rumour management, coordination of RCCE response activities and also sharing of daily or weekly situation updates to different platforms including health journalist WhatsApp groups. RCCE pillar will be linked to accredited regional and international communication platforms.

RCCE team shall conduct partner mapping through national and district HP TWG to identify partners that will support the implementation ERC plan. The RCCE will coordinate with liaison officer to ensure that there is no duplication of efforts and proper utilization of resources available. The communication strategies shall be developed and shared with all partners for implementation.

The Public Relations Officer will be responsible for communications. The RCCE pillar will develop messages and communication products and disseminate to the public through district RCCE/HP

TWG, partners and also to the media houses. To ensure consistency of messaging, message development guidelines were developed to guide all RCCE stakeholders when developing messages.

3.4.4 Two-Way Communications Mechanisms.

The ERC ensures a two-way communication where by RCCE pillar sets up a system to facilitate rumour tracking and management at all levels. The system involves tracking rumours at different platforms/levels such as social media and in the communities to manage rumours and concerns. Depending on the nature of the threat, interpersonal communication including community engagement shall be encouraged.

The RCCE ensures audience segmentation for effective social and behaviour change communication. Much emphasis shall be focused on vulnerable populations. Community influencers such as religious and traditional leaders, media and health workers are tactfully targeted to facilitate dissemination of information to the general public.

The communication materials shall be translated into local languages such as Chichewa and Tumbuka to ensure maximum reach to intended audiences. RCCE will ensure that the communication materials are inclusive and adapted to literacy levels of the targeted audience

3.5 Activation of National Multi-Hazard Emergency Response Operations Plan (NMHEROP) and Information Dissemination

The NMHEROP may be activated by:

The Secretary for Health who has the authority to pass decisions to activate the NMHEROP following the advice from the Director of PHIM upon the receipt of recommendations from the NPHEOC Manager.

An activation of the plan triggers the notification of the following:

- Minister of Health: Will hold the press conference informing the public of the health emergency.
- Health Cluster: Approves recommendations from NPHEOC, provides guidance for further response and mobilizes resources.
- Director PHIM: Receives notification from NPHEOC manager about the confirmed public health emergency. Facilitates the deployment/appointment of prequalified Incident Manager.
- Incident Manager: Coordinates response activities. The incident manager will appoint prequalified pillar leads for IMS
- Finance and Administration: Activates financial processes and logistical support for the response. Manages compensations for injuries claimed by response personnel. Organises rapid transfer of funds and supports funding of proposals

- Communication officer /Public Information: Initiates all the communication systems of the response and appoints the spokesperson for the response in liaison with the Incident Manager, including production and dissemination of situation reports, press releases and dashboards. Liaises with RCCE pillar to disseminate key prevention and other measures through radio, social media, and other communications channels.
- Liaison officer: Alerts and engages with stakeholders/ partners about PHE and starts for resource mobilization of resources for the response.
- Operations Manager: Receives prioritized orders from IM and defines the operations of the response teams. Oversees all operations of the outbreak response in collaboration with the IM and continuously monitors operational effectiveness of the response.
- Planning section: Coordinate finalisation of the development of Incident Action Plan within 72 hours and initiate its implementation in liaison with Operations Section during implementation of the IAP. Institute the implementation of IAP within 72hours
- NPHERRT: The multi-sectoral rapid response team from the National level is mobilised and deployed to support DPHERRT to investigate the situation and initiate immediate mitigation measures.

District level Manager

- PHEMC Approves recommendations from DPHEOC, provides guidance for further response and mobilizes resources.
- District Commissioner: Activates the IMS and chairs PHEMC
- Director of Health and Social Services: Facilitates the deployment/appointment of prequalified Incident Manager.
- DPHERRT: Determines the extent and magnitude of the public health emergency, investigates the situation and respond to the emergency.
- Facility Rapid Response Team: Identify and report the emergency to the district PHEOC Manager
- Community Health Care Worker/Volunteer: Volunteers will report a rumour to the facility level through Event Based Surveillance.

Suggested annexes for this section:

- *PHEOC Hand Book*
- *Event Based Surveillance Guidelines*
- *Draft Emergency Grading and Activation memorandum to be used.*

Chapter 4: Emergency Response and Recovery

4.1 Key Multi-Hazard Response Structures and Concepts

4.1.1 Responsibilities and Response Structure At Different Health System Levels: National, District And Health Facility

Upon activation of the IMS in the NPHEOC, an Incident Manager will be assigned to coordinate the response activities with support from the NPHEOC Manager.

The Secretary for Health (SH) is responsible for assigning the IM from the pre-selected IMs list

Incident Management Roles and Responsibilities:

- **Minister of Health:** Will hold periodic press conferences informing the public on updates of the health emergency
- **Health Cluster:** Approves recommendations from NPHEOC, provides operational guidance for further response and mobilizes resources.
- **Director PHIM:** Coordinates and facilitates the implementation of recommendations that are made.
- **Incident Manager:** The IM is responsible for overall management of the response. The IM delegates the other five sections (Operations, Planning, Logistics, Administration/finance, and Human Resources), depending on the type, size, and complexity of the PHE.
- **Finance and Administration:** Ensures office administration and support and handling all correspondence related to the response.
- **Communication officer/Public Information:** Is responsible for sharing key messages regularly with all stakeholders. Issuing press releases at key moments in the response: scaling up of support and key control measures such as vaccination campaigns and then containment and end of outbreak. Conduct Media scanning. Liaison officer: Continuously engages with stakeholders/ partners for resource mobilization for the response.
- **Operations Manager:** Oversees conduct of all operations of the PHE response in collaboration with the IM and continuously monitors operational effectiveness of the response.
- **Planning Manager:** Coordinate reviews of IAP. Liaise with Operations during implementation of the IAP. Prepares and maintains resource status boards and displays status and location of tactical resources.

- **National PHERRT:** The multi-sectoral rapid response team from the National level is deployed to support DPHERRT to manage the emerging issues in the response continuum.

District level

- **PHEMC:** Approves recommendations from DPHEOC, provides guidance for further response and mobilizes resources.
- **Director of Health and Social Services:** Monitors the response and receives updates from the incident manager. Provides policy guidance.
- **District PHEOC:** Coordinate operations at the district level.
- **District PHERRT:** manages the emerging issues in the response continuum.
- **Facility PHERRT:** manages the emerging issues in the response continuum within their jurisdiction.
- **Community Health Workers/Volunteers:** Continuously report rumours on emerging issues during the response.

4.1.2 Concept of Operations

4.1.2.1 Activation protocol

The facility in charge receives an alert from the community and sends to the DHSS through the District IDSR Officer. The DHSS will deploy the DPHERRT to investigate and confirm the alert. Simultaneously, the DHSS alerts the National IDSR Focal Person through the district IDSR Focal Person. When the alert is confirmed as a PHE, the DC activates the IMS appoints an IM to start the response. The IM assigns the District PHERRT to conduct an initial risk assessment and initial grading of the PHE. The District IDSR FP shares the findings of the risk assessment to the NFP through the DHSS. The NPHERRT supports the DPHERRT in the response continuum when necessary. The district EOC will adjust their response operations in respect of the level of the PHE. The national IMS will be activated and an IM will be appointed to start the response process. The National IM will deploy the NPHERRT to conduct the grading of the emergency based on the criteria in section 3.4.2 above. The results of the grading are communicated to the PHIM Director who will communicate to the SH with recommended public health response actions. Upon confirmation of the PHE, the National IDSR Officer will report to WHO through the PHIM Director and SH. Overall response will be coordinated according to the three levels of command and control which are strategic, operational and tactical levels as follows;

1. Strategic level

The highest level of the Preparedness and Response Plan Structure responsible for strategic coordination and policy making for disasters is the DODMA in accordance with the Preparedness

and Relief Act 1991 and Public Health Act (1948/under review) is under grade level 3. When the grade is either on depending on the graded Level one or two, Ministry of Health will take a lead in providing the strategic guidance and direction of emergency and the involvement of different sectors and ministries, the strategic level will operate from the office of the District Commissioner, Secretary for Health or Secretary to the President and Cabinet (SPC).

This level:

- Provides high-level direction and guidance for the response
- Determines the need to declare a national-level emergency on recommendations from operation level
- Determines when the state of national level emergency has ended
- Makes and endorses policy required to enable the response
- Establishes national and multinational objectives
- Establishes national and multinational objectives
- Develops national-level response plans to support these objectives
- Coordinates national-level response.
- Monitors the operational coordination and implementation of the strategy
- Approves and ensures provision of human resources for the response and other capabilities as needed to support operations and to achieve established objectives.
- Prepares and/or approves public communications materials, technical guidance and activities.

This strategic level under the SPC coordinates all types of disasters and emergencies and is not restricted to public health events.

2. Operational level

The PHEOC is the operational level responsible for effective leadership and coordination of all response elements and maintenance of situational awareness for strategic-level authorities. The district PHEOC and National PHEOC will coordinate Level 1 and Level 2 and 3 events respectively. Level 4 events will be coordinated by the national EOC at DoDMA. The EOC coordination will be led by a designated Incident Manager for the reported event and will be responsible for the implementation of the response actions.

The operational level provides;

- The technical lead (IM) for the operational response based on strategic guidance;
- Develops operational-level plans to meet strategic objectives;
- Coordinates the response with other responding agencies, including international partners responding at the operational level;
- Prioritizes and provides the resources to support response activities at the tactical level.
- Monitors the operational coordination and implementation of the strategy
- Prepares and/or approves public communications materials, technical guidance and activities.

The IMS at national level will be activated according to the level of the emergency.

3. Tactical Level

The tactical level is responsible for the day-to-day actions that will achieve the established strategic and operational goals and objectives. The tactical level implements measurable and achievable actions using the available resources to achieve the desired results. The level is at the district or health facility level but supported by the NPHERRT as may be required.

Decisions related to tactical actions should be made at the lowest level possible which is district level. The tactical level should have the freedom to determine a course of action based on assigned objectives. Higher levels should avoid directing specific actions or tasks except as dictated by policy or resource limitations. The tactical level should be able to reach up to the operational level to request resources as needed to complete assigned objectives.

The overall functions of the tactical level are to:

- Implement daily emergency preparedness and response activities.
- Conduct health facility and community surveillance activities and report to the operational level.
- Identify additional resources required on daily basis and submit all resource needs to the operational level.
- Provide support to community-based emergency response teams and facilities.
- Conduct case management
- Record and report incidences

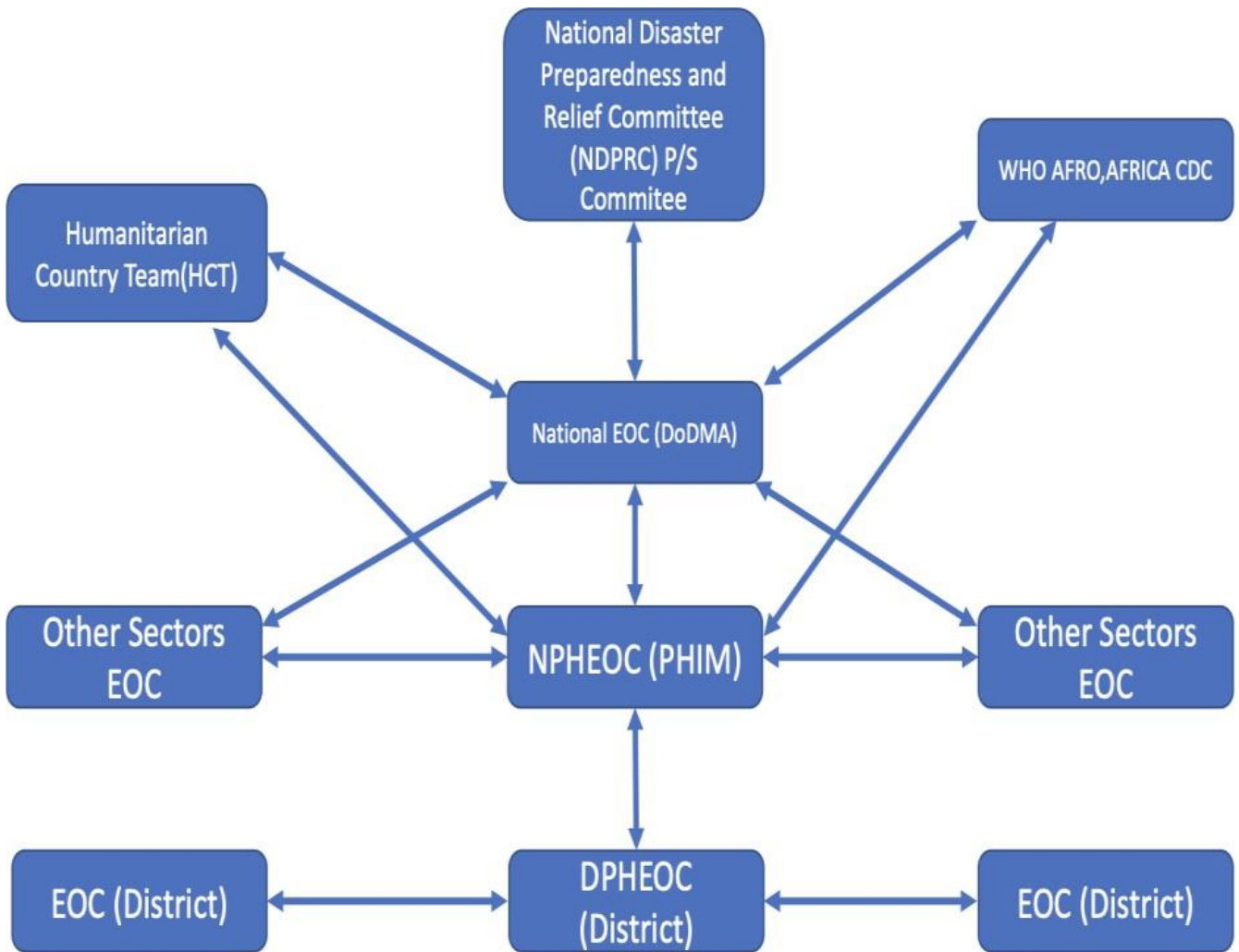


Figure 7: Operational level structure

4.1.2.2 Command and control

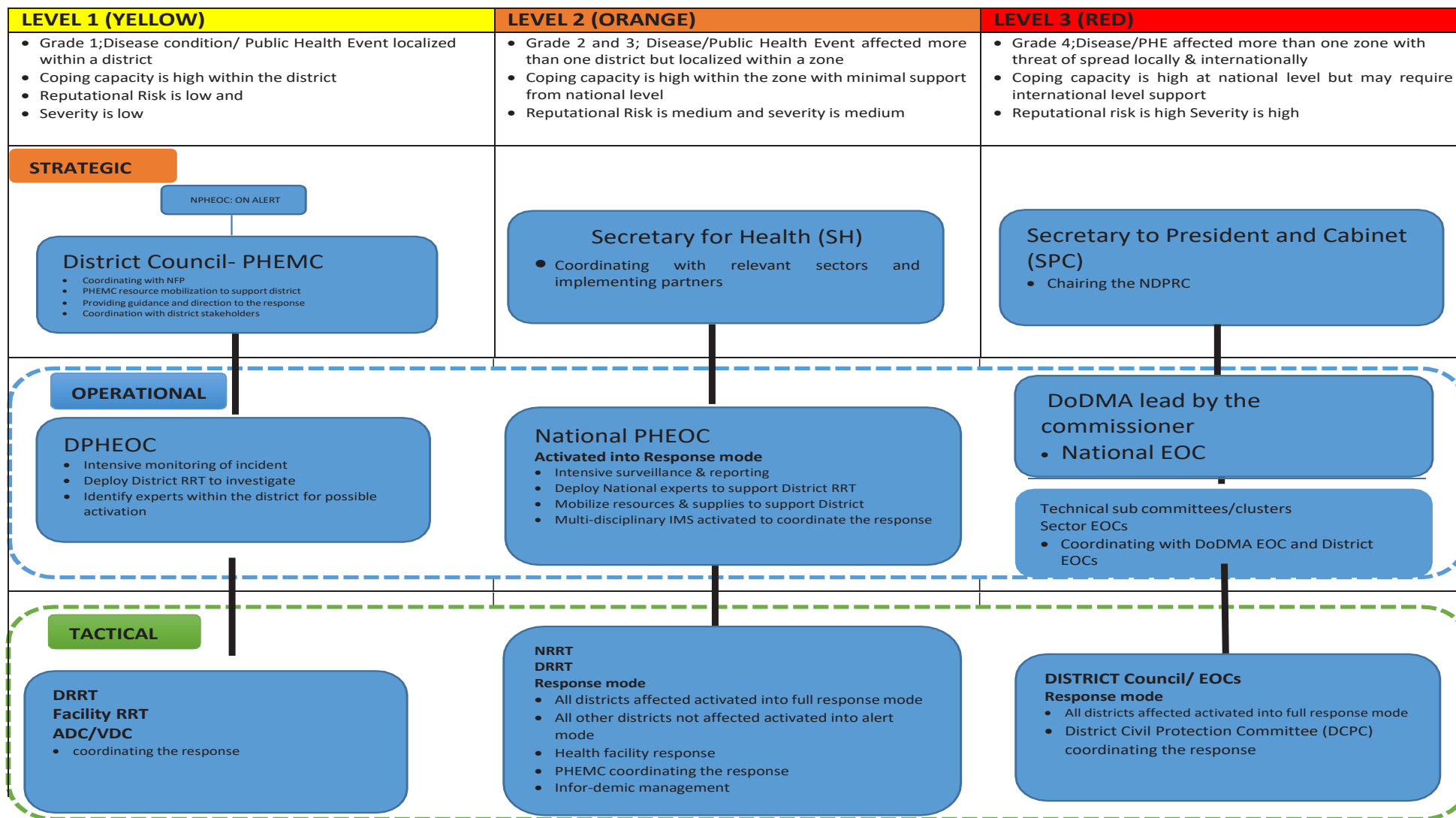


Figure 8: Flow Chart

4.1.2.3 Provisions for Multi-agency and Multi-sectoral Coordination during Response

During an emergency response, coordination with key health partners and other sectors will be achieved through existing communication systems which include:

- a. Teleconferencing facilities
- b. Video conference facilities
- c. Telephones: landline, mobile (toll free facility)
- d. Television and radio
- e. Electronic data repository
- f. Real-time web-based surveillance reporting
- g. Email, SMS and social networking platforms
- h. Physical meetings.

The scale and scope of a public health event determines whether or not the health sector takes up the leadership role. When the event is of a small scale, coordination will be achieved through the district PHEOC. However, if the scale and scope of the event were to escalate to Level 2 or 3, the national PHEOC coordinates the response activities and when the event escalates to a disaster and there is involvement of several sectors from outside the health sector, DoDMA leads the coordination of disaster preparedness and response through the national PHEOC. These inter-related activities will be done in coordination with relevant line ministries and departments. District Commissioners are mandated to coordinate any emergency related activities in their districts in collaboration with the Civil Protection Committee with the assistance of MRCS and other NGOs operating in the districts.

Interaction with the command & control structure at the strategic, operational or tactical levels is interlinked through communication platforms. At strategic and policy level, communication platforms are interlinked to coordinate multi-sectoral planning and operations. This also includes coordination with international partners to ensure strategic-level unity of effort. To maintain situational awareness for strategic-level authorities, the operational (coordination) level is interlinked to the strategic level. On the other hand, the tactical level also interacts with the operational level and implements strategic/operational goals and objectives. This interaction enables the tactical level to reach up to the operational level to request for support. This flow of information is illustrated below.

4.1.3 Incident Management System (IMS)

Malawi uses the Incident Management System (IMS) primarily to respond to and mitigate the effects of all types of PHEs. IMS is an internationally recognized standard emergency management tool which provides a common organizational model for hazards and emergencies. IMS is activated when the PHEOC is in the response mode. Responsibilities for incident management staff by section are as described below:

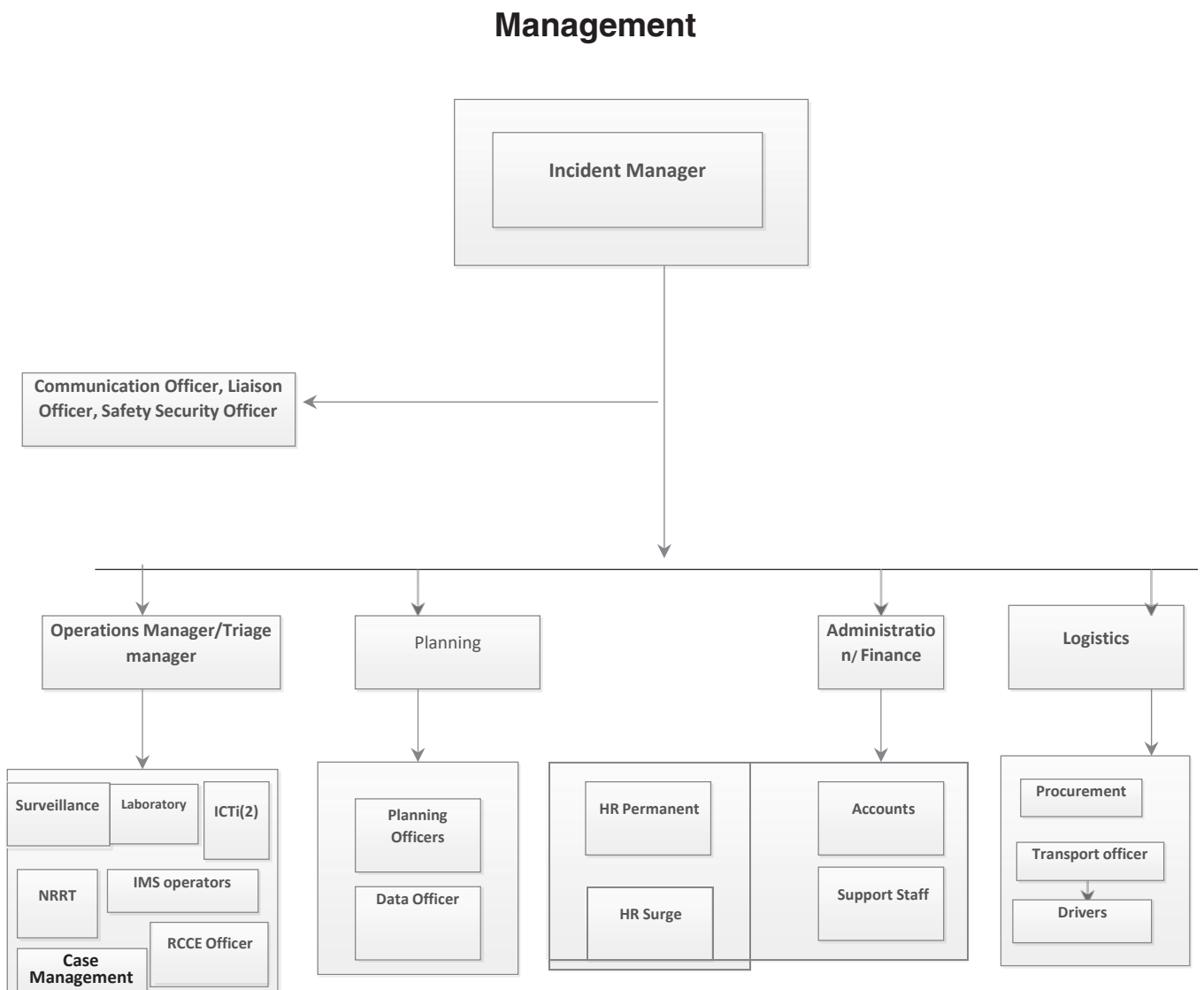


Figure 9: Incident Management System structure

4.1.3.1 Management Section

The Management Section sets the response objectives, strategies and priorities; including public communication and liaising with agencies.

The following members constitute the management section: The Incident Manager, PHEOC Manager (only in watch and alert mode), the Communications and liaison officer and the Safety and security officer.

Incident Manager

Alert and Response mode

Upon activation of the IMS, an Incident Manager will be appointed to coordinate the response activities in collaboration with the PHEOC manager. Secretary for Health is responsible for appointing the IM from a pre-selected IMs list when PHE is graded level 2 and the DC will appoint the district IM if the PHE is level 1. The OPC will appoint IM when the PHE is graded level 3. The IM in collaboration with the PHEOC manager sets the response objectives, strategies and priorities to the particular PHE with other section heads and the PHEOC staff.

The IM is responsible for overall management of the response. The IM delegates the other five sections (Operations, Planning, Logistics, Administration/finance and Human Resources), depending on the type, size and complexity of the incident. Section heads who are in charge of each established section are responsible for managing or supervising their respective sections and directly report to the PHEOC Manager during the watch mode and to the IM during the response mode, and is also responsible for the overall incident action plan

The IMS is scalable and depending on the size and type of the incident, divisions, groups or units can be formed under the sections.

Communications and liaison officer

Alert and Response mode

The Communications and liaison manager is responsible for:

- Posting the daily situation update on the MOH and PHIM websites and sending out to key media and stakeholder contacts
- Holding regular press briefings on the situation
- Sharing key messages regularly with partners to ensure everyone is speaking with one voice
- Issuing press releases at key moments in the response e.g. announcement of the PHE, scaling up of support and key control measures such as vaccination campaigns and then containment and end of outbreak.

- Daily monitoring of news channels, including social media to spot any misinformation or rumours circulating
- Using social media and mainstream media platforms to disseminate key information and to dispel rumours, as well as to identify issues of concern
- Media training of key journalists and outlets to sensitize them On key prevention and other control measures
- Working with risk communications, health promotion and community engagement colleagues to disseminate key prevention and other measures through radio, social media and other communications channels
- Communicating with the public to inform them about the situation, control measures and risks

Safety and Security Officer

Alert & Response modes

The safety and security officer:

- Monitors the health, welfare, and safety of all responders.
- Provides safety and security briefings to response teams.
- Gives guidance on the psychological and emotional challenges that staff may face during response activities.
- Advises the PHEOC Manager/Incident Manager on issues regarding safety.

4.1.3.2 Operations Section

The Operations Section guides the use of resources to directly respond to the event. At the national level it provides coordination and technical guidance. This function is also responsible for maintaining documentation of the event and preparing the Incident Action Plan (IAP) containing general objectives reflecting the overall strategy for managing the incident.

This section includes the following technical areas: Surveillance (epidemiological data management), Laboratory, NRRT, Risk Communication and Community Engagement, Case Management and Infection Prevention and Control (IPC).

Depending on the size and type of the incident, technical areas, response sectors and command staff within this section will be established to respond adequately to the PHE.

Alert and Response Mode

The Operations Section:

- Makes recommendations to the PHIM director through the PHEOC Manager and Incident Manager regarding response mechanisms
- Provides technical guidance and guides the use of resources to directly respond to the event
- Sets priorities and defines the organisation of the response teams
- Oversees all operations of the outbreak response
- Continuously monitors operational effectiveness of the response
- Presents updates to the health cluster
- Ensures availability of the end of PHE after action report
- Recommends deactivation and deescalating of the IMS to the IM when the outbreak is declared over

4.1.3.3 Planning Section

The director in the Department of Planning from the MOH will appoint an officer to lead the Planning section in supporting the event/incident action planning and budgeting process by tracking resources, collecting and analysing operational information related to the event such as status of materials deployment. The section through its digital health division is also responsible for maintaining and securing the Information Technology (IT) infrastructure that host applications used by PHEOC, developing applications as per PHEOC needs as well as capacity building for district teams in applications.

Alert & Response mode

The Planning Section:

- It supports the development, revision or updating of preparedness and response or contingency plans for a PHE
- Keeps track of, ensures adequate recording, storage then archiving of all documentation related to a PHE
- Prepares and maintains resource status boards and displays
- Tracks current status and location of tactical resources
- Supports Intra-Action Reviews
- Coordinates development of collective plans

4.1.3.4 Logistics Section

The Logistics section is in charge of acquiring, tracking, storing, distributing, maintaining and disposing of material resources required for managing the incident.

4.1.3.5 Administration and Finance Section

The Administration and Finance section manages all financial and administrative tasks including accounting.

Alert & Response mode

The Administration branch:

- Ensures office administration and support, handles all correspondence related to the response
- Monitors and maintains office supplies, ensures that printers, scanners and copiers are functional and stocked with paper and toner
- Ensures that all memos, letters and other documents related to the response are handled effectively, rapidly and disseminated accordingly
- Prepares and maintains a rotation plan for administrative staff beyond normal hours in line with the SOPs
- Manages compensation for injury claimed by response personnel
- Ensures that personnel are compensated for time worked and that documentation meets policy standards
- Updates arrival and departure dates of deployment of personnel

The Finance branch:

- Manages financial resources
- Organises rapid transfer of funds if/when required
- Supports funding proposals
- Organises petty cash for staff deployed to the field (for emergency procurement in the field and / or cash advance on per diem) if needed
- Monitors expenditure for the response, including cash flows and works with partners for cost sharing arrangements

- Clears all financial documents, supervising cash flows by estimating, tracking and approving response related expenditure
- Monitors and coordinates funding from all sources
- Creates and maintains cumulative response cost records
- Provides regular financial reports, and advises on potential cost savings
- Prepares procurement instruments
- Ensures accounts for all properties utilised in the response

4.1.3.6 Human Resource Section

The Human Resource section is responsible for the overall human resource functionalities of the PHEOC.

Alert and Response Mode

- Regularly assesses and identifies human resources needs for the response in liaison with the Incident Manager and the sections heads
- Sends requests to relevant partners for human resource support
- Facilitates recruitment of local experts (surge staff) and organises administrative arrangements
- Facilitates screening of workers during recruitment

4.1.4 Deactivation and Post Emergency response

Objective

This section explains deactivation process of the emergency response mechanism after the level of the event is lowered or the response to the event is completed. Additionally, the section will also present the process for conducting an After-Action Review and how to capitalize or incorporate lessons learnt into revisions of this ERP and/or into the yearly preparedness work plan.

Process

The following are the factors considered in order to initiate emergency phase-out process:

1. Significant lessening of the hazard particularly below state-of-emergency activation levels.
2. Zero case reporting after recommended numbers of incubation periods for emergency deactivation for very infectious hazards.

When either of these two factors is satisfied depending on the nature of the emergency, deactivation process ensues.

The IM will constitute a PHEOC/NEOC (comprising of several multi-sectoral EOCs) to review the grading of the event based on the data received. In accordance with the reviews, the PHEOC endorses the new grade.

The IM will prepare a report and present it to the PHIM Director who then will communicate the new grade to the SH. Consequently, the SH will inform the Minister of Health and stakeholders of the lowered grade and the possible timeline for incident closure. At that point the preparations for the closure of the incident including skills transfer to local personnel, debriefing and handover, will be undertaken. When the incident is finally closed, there will be a press release and media briefing issued by the Minister of Health.

The press release will be prepared by the Communications Officer and it will be signed by the SH. In case of responses involving more than one ministry, the coordinating agency (DODMA) will prepare and issue the statement.

4.1.3.1 Deactivation

The emergency deactivation report will be prepared by the IM and will outline how the incident evolved, was graded and managed. It will also include the resources deployed and the total cost of the response.

- o It will be archived in the Public Health EOC and DODMA (for incidences that involve more than one sector) for future use and reference

4.1.3.2 Remaining Resources and Assets Reallocation

The Administration Department in the Ministry of health will develop an asset register of all deployed non-consumable assets during the response operation. At the phase out and closure of the operation, the Principal Secretary Administration within MoH will be responsible for redeploying them within the health sector based on need. In case of consumables, the Director PHIM will recall and redeploy to areas where there is need with priority to affected areas to support recovery.

4.1.3.3 After-Action Review process

After Action Review (AAR) is a qualitative review of functional capacity which is conducted after response to public health events. It helps to assess actions taken in response to a public health emergency as a means of identifying best practices, gaps and lessons learnt in order to take corrective actions to improve future response. It is highly recommended to conduct the AAR immediately after de-activation and up to three months after the event. Therefore, the PHEOC will conduct AAR within the recommended timeframe. After-action reviews typically seek to address five common questions:

- What happened during the response (and what was supposed to have happened)?
- Why did it happen?
- What can be learned?
- What should change?
- Have changes taken place?

Table 11: Phases for conducting AARs

1. Design	2. Prepare	3. Implement	4. Disseminate
Define the scope of the AAR including which response area to assess	Collect information on the event in question relevant to the scope of the AAR	Conduct AAR workshop(s) according to preferred methodology (e.g. event-storming, interviews, facilitated look-back)	Collate findings in a final report documenting methodologies, results, conclusions; ensure summaries of good practices and lessons learned, supported by evidence where available.
Conduct stakeholder analysis to ensure appropriate stakeholders and sectors are involved	Prepare trigger questions and interview questionnaires (if required)	Debrief all participants with preliminary findings	Distribute the final report as widely as is feasible and appropriate.
Select an appropriate AAR methodology based on best practices in AARs	Brief and train (if required) team members, including facilitators.	Evaluate the AAR itself among participants	Develop an action plan for implementing key recommendations.
Define the AAR team	Gather necessary material for workshop(s) and interviews		
Develop a detailed agenda			
Select date and venue for workshops and/or interviews			
Estimate and allocate budget			

4.1.3.4 Reporting

- The emergency deactivation report will be prepared by the IM and presented to the PHIM Director. And the PHIM Director will submit the report to the SH who will share with the responsible Minister/s and Partners. It will outline how the incident began, evolved, graded and managed.
- The findings of the IAR and AAR will be disseminated to all relevant stakeholders, implementing partners and the general public.

4.2 Recovery

Definition

Recovery is concerned primarily with rebuilding infrastructure and restoring the social and economic life of the community with the incorporation of mitigation measures as a major goal. In the short run it involves restoring essential services such as power, communications, water and sewage, transportation, education services and providing for basic human needs like food, clothing, shelter and medical assistance.

4.2.1 Roles and Interaction of Health Sector in Multi-Sectoral Recovery Processes

The ministry of health will be responsible for the following activities which are based on the six pillars of health system strengthening:

- Provide and coordinate psycho-social support
- Provide and coordinate medical services both temporary and permanent (Rebuilding clinics, provision of medical supplies, mobile clinics, reproductive health services)
- Provide and coordinate WASH services (e.g. clean water through chlorination, soap and sanitizers for hand hygiene)
- Provide and coordinate health education services (Preventable diseases)
- Coordinate and provide nutrition support to affected population
- Vaccinate against Vaccine-Preventable Diseases (Measles, Cholera)

Table 12: Emergency Recovery Activities within the Ministry of Health

Pillars	Roles of the MOH	M&E Methods
Health service Delivery	Service provision in the health system by ensuring availability, utilization, coverage, accessibility, accountability, quality during recovery in emergency. (adequate infrastructure e.g. temporary/mobile clinics, treatment centres, rebuilding of permanent structures; skilled personnel, essential medicines, waste management facilities etc) Nurses and clinicians, psychosocial counsellors	<ul style="list-style-type: none"> • Regularly review service delivery • Review meetings with stakeholders • Regularly conducting service delivery gap analysis
Health information	<ul style="list-style-type: none"> • Ensure availability of a functional HMIS that captures data including feedback of activities during recovery in emergency (e.g. real time data for decision making) • And Develop EWARS 	<ul style="list-style-type: none"> • Data review meetings
Health Workforce	<ul style="list-style-type: none"> • Ensure availability of adequate and skilled service providers in both temporary and permanent structures 	<ul style="list-style-type: none"> • Conduct personnel and skills audit • Map surge capacity and generate roster
Essential medicines	Ensure availability of essential medicines in both public and private health facilities as well as treatment centres during recovery from an emergency	<ul style="list-style-type: none"> • Conduct site inspection • Conduct surveys of medicine price and availability using WHO/MOH guidelines
Health financing	<ul style="list-style-type: none"> • Develop recovery plan with costed activities to use for lobbying funds for financing of health-related recovery activities during emergencies • Monitoring use of finances during recovery phase. • Develop a resource mobilization strategy to be used by the steering committee at high level. 	<ul style="list-style-type: none"> • Budget Review meetings • 4Ws Resource Tracking

<p>Leadership and governance</p>	<ul style="list-style-type: none"> • Lead in the development of protocols, SOPs, guidelines in all services including case management, vaccination and nutrition for use during recovery phase. • Lead in development of policies for management of health-related events during emergencies e.g. provision of essential medicines, case management, vaccination, provision of temporary and permanent structures (clinics, treatment centres) • Coordinate provision of essential services e.g. psychosocial support, WASH services, HES, case management, reproductive health services, nutritional services, vaccination services, EPI and Disease-specific programmes 	<ul style="list-style-type: none"> • Regular review of policies, SOPs, guidelines • Review meeting with all stakeholders • Ensure continued regular meeting of steering committee for multi- sectoral coordination
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4.2.3 Groups in Charge of Recovery Processes within the Ministry of Health

Table 13: Groups in Charge of Recovery Processes within the Ministry of Health

Recovery service	Group in charge
Psycho-social support	Nurses and clinicians, psychosocial counsellors
Essential medicines	HTSS, Planning
Medical services both temporary and permanent	PAM, Clinicians, nurses, Environmental health
Provision of WASH services	Environmental Health, WASH partners, Health Education Services
Health education (Preventable diseases)	Health Education Services
Coordination and provision of nutritional services	Department of nutrition, Clinical Directorate (MOH)
Vaccination against vaccine-preventable diseases	EPI/Preventive Health Services Directorate (MOH), Disease-specific programmes
Development of HMIS and EWARS	CMED/environmental Health, PHIM
Ensure availability of adequate and skilled service providers	Directorate of Human Resources - MoH
Development of protocols, SOPs, guidelines and policies for management of health related events during emergencies	Public Health Institute of Malawi, Relevant sections in the MoH,

4.2.4 Hand-Over Process to Recovery

All relevant stakeholders will hand over the resources and assets to the Ministry of Health to continue work once the emergency is under control.

- Equipment and response resources including personnel must be accounted for and returned
- Unused resources and donations must be re-allocated
- Incident specific financial accounts must be finalized and closed
- Public Health treatment, prevention and mitigation initiatives undertaken as part of the response should be shifted to sustained mitigation and prevention programmes, along with any uncommitted funding

NB. Recovery efforts should try to address the pre-existing constraints that contributed to the occurrence and weaknesses in management of the event.

Chapter 5: Contingency Plans

Contingency Plans Annexed to this MHERP as follows:

1. Floods Contingency Plan



Floods_Contingency_
Plan_Final.doc

2. Cholera Contingency Plan



Cholera_Contingency_
Plan_final.docx

3. Measles/Rubella Contingency Plan



Measles_Rubella_
Contingency Plan_final.do

4. COVID-19 Transition Plan

5. EVD Contingency Plan



EVD_contingency_plan
_final.docx

6. RTA Contingency Plan



RTA_Contingency_
Plan_final.doc

7. Tropical Cyclones and Stormy Rain Contingency Plan



Cyclone_and_Stormy_
Rains_Contingency_

8. Rabies Contingency Plan



Rabies_Contingency_
Plan_Final.doc

9. Typhoid Contingency Plan



Typhoid_Fever_
Contingency_Plan_Malawi.

10. Poliomyelitis Contingency Plan



Polio_Contingency_
Plan_final.docx

11. Monkey Pox Contingency Plan



Monkeypox_contingency_
plan_final.docx

Chapter 6: Reference Materials

1. International Health Regulations (IHR) of 2005-available : source https://www.who.int/health-topics/international-health-regulations#tab=tab_1.
2. Sustainable Development Goals (SDGs) source: <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>.
3. United Nations Framework Convention on Climate Change of 1992: source: https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf
4. Global Health Security Agenda (GHTSA) source: <https://www.cdc.gov/globalhealth/security/actionpackages/default.htm>
5. Universal Health Coverage 2030 source: <https://www.worldbank.org/en/topic/universalhealthcoverage>
6. Guidelines on COVID 19: <https://phim.health.gov.mw/downloads/#>
7. Cholera National Preparedness Plan 2020 – 2021 (Available): Offline
8. Anti-microbial Resistance Strategic Plan – Available Malawi 3rd Edition Integrated Disease Surveillance and Response Guidelines 2020 (available)
9. Public Health Institute of Malawi strategic Plan2018-2022 source: <https://phim.health.gov.mw/downloads/#>
10. Public Health Act source: <http://www.ead.gov.mw/storage/app/media/Resources/Miscellaneous/Public%20Health%20Act.pdf>
11. Health Sector Strategic Plan(HSSPII) 2017-2022 source: https://www.healthdatacollaborative.org/fileadmin/uploads/hdc/Documents/Country_documents/HSSP_II_Final_HQ_complete_file.pdf.pdf
<https://www.health.gov.mw/index.php/policies-strategies?download=14:malawi-health-sector-strategic-plan-2011-2016>
12. National Health Policy source: <https://www.health.gov.mw/index.php/policies-strategies?download=56:national-health-policy>
13. National Livestock Development Policy (2020-20252021-2026 (Available in draft) source: <https://livestockinmalawi.page.tl/Livestock-policy.htm>

14. Environment Management Act source: https://ead.gov.mw/storage/app/media/Resources/Miscellaneous/ENVIRONMENT_MANAGEMENT%20ACT%20-2017.pdf
15. Control and Animal Diseases Act source: <https://malawilii.org/mw/consolidated-legislation/6602>
16. Atomic energy act source: <http://faolex.fao.org/docs/pdf/mlw169268.pdf>
17. Pesticides Act 2000 (Available) source: http://www.ilo.org/dyn/natlex/natlex4.detail?p_lang=en&p_isn=94726&p_country=MWI&p_classification=14
18. National Environmental Health Policy (2017-2022) source: <http://wesnetwork.org/wp-content/uploads/2020/03/Environmental-Health-Policy.pdf>
19. Preparedness and Relief Act 1991 source; <https://malawilii.org/mw/consolidated-legislation/3305>
20. Template for a SitRep source: <https://phim.health.gov.mw/downloads/#> 21. Template for line lists:
22. Template for intervention proposal
23. Draft PHEOC Handbook (in draft)
24. Organogram and line management for technical coordination 25. List/Roster of technical human resources
26. Mapping of key health structures and services 27. Contact list of technical partners
28. Template for CONOPS for response 29. Suggested annexes for this section: 30. Supplier list
31. Procurement plan and process 32. National/regional emergency stock
33. Stock management system from request to delivery 34. Fleet management system
35. Model of contracts 36. Template for budget
37. Template for deactivation memo 38. Template and models for reporting
39. Template for material and equipment hand-over
40. IAR manual template
41. COVID-19 IAR Report
42. Sanitation policy Source: <https://www.ircwash.org/sites/default/files/824-MW06-19182.pdf>

43. Health Care waste management policy: <https://www.health.gov.mw/index.php/downloads/category/7-icwmp?download=62:icwmp>
44. Policy brief for climate change and human health: source <https://reliefweb.int/sites/reliefweb.int/files/resources/NCCM-Policy-Final-06-11-2016.pdf>
45. Rabies Strategic Plan 2018-2024 source <https://rabiesalliance.org/country/malawi>
46. COVID-19 Preparedness and Response Plan 2021: Source https://reliefweb.int/sites/reliefweb.int/files/resources/national_covid_19_preparedness_and_response_plan_revised_28-08-2020_final_003.pdf
47. Measles Contingency Plan
48. EVD Contingency Plan
49. Floods Contingency Plan
50. AMR Action Plan
51. Rabies Strategic Plan
52. Typhoid Contingency Plan
53. Food Safety Policy
54. Poliomyelitis Contingency Plan
55. Trypanosomiasis
56. Chemical/Fuel Spill contingency plan

Chapter 7: List of Annexes

- Health Sector Strategic Plan
- Disaster Preparedness and Relief Act(CAP33.05), 2015
- Malawi Risk Management Policy, 2015
- Disaster Management Contingency Plans (annually)
- Stockpile list
- Public Health Act
- Environmental Health Policy
- Sanitation policy
- Health Care waste management policy
- Policy brief for climate change and human health
- Control and Animal Diseases Act
- Department of Animal Health and Livestock Policy (2006)
- PHEOC Handbook
- The risk and crisis communication plan for COVID-19.
- Malawi Polio Advocacy, Social Mobilization and Communication Response Plan.
- Risk Communication and Community Engagement Preparedness Plan for Ebola Viral Disease.
- COVID-19 Vaccine Related Events Response Plan.

Table 14: Priority diseases, conditions and events for Integrated Disease Surveillance and Response – 2020¹

Epidemic prone diseases, conditions or events	Diseases targeted for eradication or elimination	Other major diseases, events or conditions of public health importance
<ol style="list-style-type: none"> 1. Acute haemorrhagic fever syndrome* 2. Anthrax 3. Meningococcal Meningitis 4. Cholera 5. Dengue fever 6. Diarrhoea with blood (Shigella) 7. Listeriosis 8. Plague 9. SARIs** 10. Typhoid fever 11. Yellow fever 12. COVID-19 13. Rabies(Human) <p>Also:</p> <p>A cluster of deaths in the community (animal or human deaths)</p> <p>A cluster of unwell people or animals with similar symptoms</p> <p>* Ebola, Marburg, Rift Valley, Lassa, Crimean Congo, West Nile Fever, Dengue</p> <p>** National programmes may wish to add Influenza-like illnesses to their priority disease list</p>	<ol style="list-style-type: none"> 1. Leprosy 2. Lymphatic filariasis 3. Measles 4. Neonatal tetanus 5. Poliomyelitis*** 6. Onchocerciasis 7. Trachoma <p>*** Disease specified by IHR (2005) for immediate notification</p>	<ol style="list-style-type: none"> 1. Acute and chronic viral hepatitis 2. Adverse events following immunization (AEFI) 3. Diabetes mellitus (new cases) 4. Diarrhoea with dehydration less than 5 years of age 5. Epilepsy 6. Food borne illnesses 7. HIV/AIDS (new cases) 8. Hypertension (new cases) 9. Injuries (Road traffic Accidents) 10. Malaria 11. Malnutrition in children under 5 years of age 12. Mental Health 13. Maternal deaths 14. Non-neonatal tetanus 15. Perinatal deaths 16. Severe pneumonia less than 5 years of age 17. STIs 18. Schistosomiasis 19. Soil transmitted helminths 20. Trachoma 21. Trypanosomiasis 22. Tuberculosis 23. Antimicrobial Resistance(AMR) 24. 25. 26. 27. Endemic syphilis 28.
	Diseases or events of international concern	
	<p>Human influenza due to a new subtype*** SARS***</p> <p>Smallpox***</p> <p>Zika virus disease Yellow fever COVID-19</p> <p>Any public health event of international or national concern (infectious, zoonotic, food borne, chemical, radio nuclear, or due to unknown condition.</p> <p>*** Disease specified by IHR (2005) for immediate notification</p>	

¹ Some diseases appear more than once in the table e.g. malaria, trachoma, bacterial meningitis. Countries should retain the disease in the most appropriate column according to their epidemiological context.

Annexes

MALAWI		
PHE RESPONSE STRATEGIC STOCKPILE LIST		
Note; the list is not exhaustive; check with Strategic stockpile manual for a comprehensive list		
Anti-infective drugs (antibiotics) <ul style="list-style-type: none"> ➤ Amoxicillin 250mg ➤ Erythromycin 500mg ➤ Metronidazole 200mg ➤ Azithromycin 500mg ➤ Doxycycline 100mg ➤ Tetracycline eye ointment 1% ➤ Gentian violet, powder ➤ Povidone iodine ➤ Ceftriaxone injectable ➤ Ampicillin injectable 	Antidote <ul style="list-style-type: none"> ➤ Naloxone injectable 0.4mg/ml ➤ Atropine 	Surgical supplies <ul style="list-style-type: none"> ➤ Suture (Absorbable and non- absorbable) ➤ Scalpel blades ➤ Scalpel blades holders ➤ Towel clips ➤ Artery forceps ➤ Needle holders ➤ Forceps Kocher no teeth 12- 14cm) ➤ Non -Ratcheted forceps ➤ Scissor(mcindoe/mayo) ➤ Sponge holding forceps ➤ Kidney dish (stainless still 26x14cm) ➤ Suction and irrigation instruments ➤ Galipots (stainless still 100mls) ➤ Autoclaves ➤ Dressing trays (stainless still 30x15x3cm) ➤ Drum for compresses with lateral clip ➤ Elastic bandages ➤ Gauze roll, square ➤ Gauze bandage ➤ Surgical supplies ➤ Gloves, latex pre-powdered non sterile, ➤ Adhesive tape 2.5 cm x 5 m ➤ Chest drains tubes, and bottles ➤ Absorbent cotton wool ➤ Gloves, latex pre-powdered non sterile, ➤ Trauma-hardboards ➤ Neck collars ➤ Methylated spirit ➤ Chlorohexidine solutions

<p>Analgesics</p> <ul style="list-style-type: none"> ➤ Acetylsalicylic acid 300mg ➤ Paracetamol 500mg ➤ Brufen 400mg ➤ Diclofenac 50/100mg ➤ Diclofenac suppository ➤ Tramadol ➤ Pethidine 	<p>Lab Supplies</p> <ul style="list-style-type: none"> ➤ Test kits and reagents, Equipment 	<ul style="list-style-type: none"> ➤ Thermometer ➤ ECG monitors with defibrillator. ➤ Safety boxes ➤ Boots
<p>Anticonvulsants</p> <ul style="list-style-type: none"> ➤ Diazepam, injectable 5 mg/ml ➤ Phenobarbital tab 50 mg 	<p>Anaesthetic</p> <ul style="list-style-type: none"> ➤ Ketamine 50/ml ➤ Lidocaine 1%,2% ➤ Propofol ➤ Etomidate 	
<p>Other IPC materials</p> <ul style="list-style-type: none"> ➤ Chlorine ➤ Soap ➤ Mops ➤ Face masks 	<p>Anti-allergic</p> <ul style="list-style-type: none"> ➤ Hydrocortisone powder 100mg/ injectable 100m ➤ Prednisolone 5mg ➤ Chlorpheniramine ➤ Beclomethasone ➤ Betamethasone 	
	<p>Vaccines</p> <ul style="list-style-type: none"> ➤ Polio ➤ COVID-19 ➤ Rabies ➤ Measles/rubella 	
<p>Supplements</p> <ul style="list-style-type: none"> ➤ Zinc ➤ Vitamin A ➤ Slow K 		

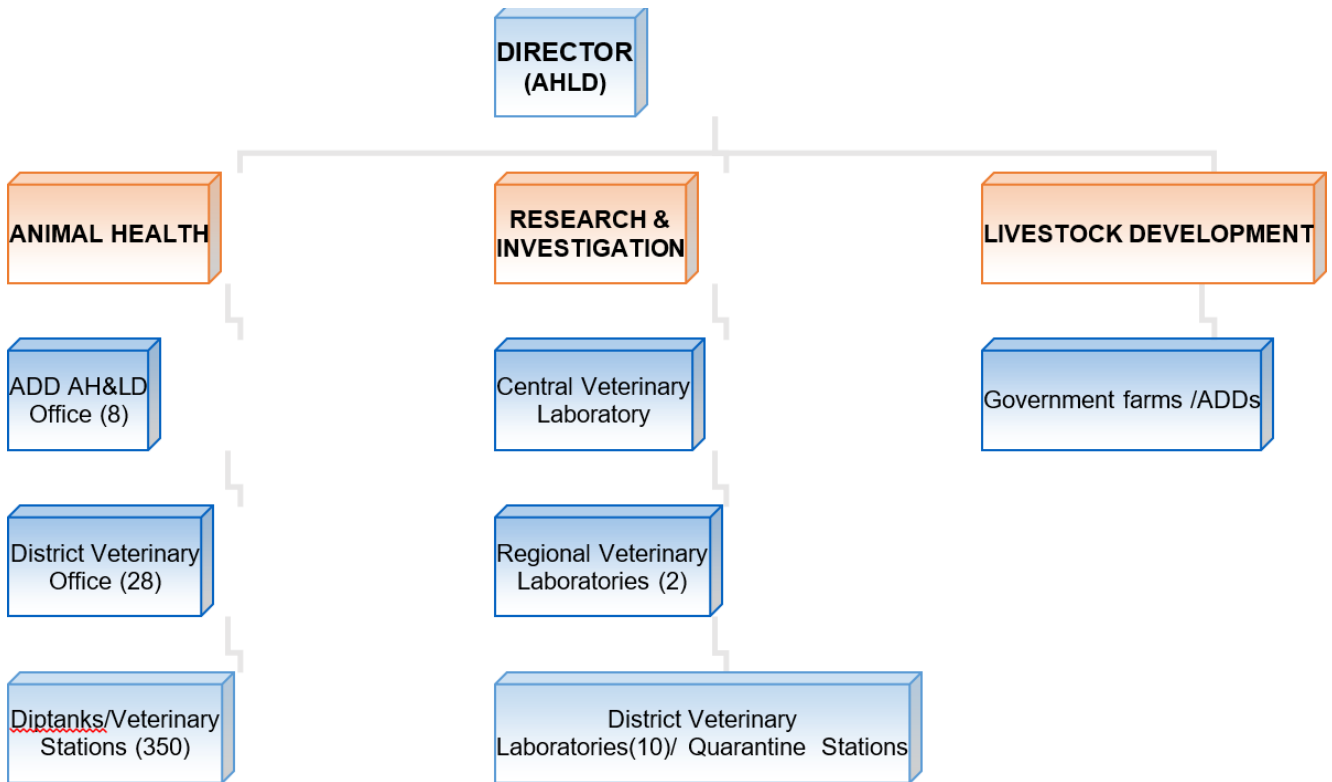


Figure 10: Department of Animal Health and Livestock Development Organogram

