REVOLUTIONARY GOVERNMENT OF ZANZIBAR

ONE HEALTH STRATEGIC PLAN 2021 – 2025

MAY 2021

REVOLUTIONARY GOVERNMENT OF ZANZIBAR

One Health Strategic Plan 2021 – 2025

May 2021

TABLE OF CONTENTS

List of Appendices

LIST OF ABBREVIATIONS

AMR	:	Antimicrobial Resistance
AU-IBAR	:	African Union Inter-African Bureau for Animal Resources
COVID-19	:	Corona Virus Disease-19
DFID	:	Department for International Development
DMC	:	Disaster Management Commission
DMD	:	Disaster Management Department
DPHE	:	Disease of Public Health Emergencies
DPs	:	Development Partners
EAC	:	East African Community
EOC	:	Emergency Operations Centre
EP	:	Emergency Preparedness
FAO	:	Food and Agriculture Organization
GAP	:	Global Action Plan
GDP	:	Gross Domestic Product
GPS	:	Global Positioning system
H1N1	:	Hemagglutinin type 1 and Neuraminidase type 1
H5N1	:	Hemagglutinin type 5 and Neuraminidase type 1
H5N7	:	Hemagglutinin type 5 and Neuraminidase type 7
HIV/AIDS	:	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IDSR	:	Integrated Disease Surveillance and Response
IEC/BCC	:	Information Education Communication/Behavior Change Communication
IFRZ	:	Institute of Fisheries Research Zanzibar
IHR	:	International Health Regulation
ILRI	:	International Livestock Research Institute
IPC	:	Infection Prevention and Control
JCBNP	:	Jozani Chwaka Bay National Park
JEE	:	Joint External Evaluation
KAP	:	Knowledge, Attitude and Practice
LBV	:	Lagos Bat Virus
M&E	:	Monitoring and Evaluation
MDR	:	Multi Drug Resistance
MERS	:	Middle East Respiratory Syndrome
MoH	:	Ministry of Health
MoU	:	Memorandum of Understanding
NAP	:	National Action Plan
NBS	:	National Bureau of Statistics
NGOs	:	Non-Governmental Organizations
NIMR	:	National Institute for Medical Research
OECD	:	The Organization for Economic Cooperation and Development
OH	:	One Health
OHU	:	One Health Unit
OIE	:	World Organization for Animal Health
PHEOC	:	Public Health Emergency Operations Centre
PMO	:	Prime Minister's Office
PO	:	President's Office

PoE	:	Port of Entry
PPE	:	Personal Protective Equipment
PZDs	:	Priority Zoonotic Diseases
QA	:	Quality Assurance
Q-fever	:	Query Fever
RECs	:	Regional Economic Communities
RRT	:	Registered Respiratory Therapist
RVF	:	Rift Valley Fever
SADC	:	Southern African Development Community
SARS	:	Severe Acute Respiratory Syndrome
SC	:	Steering Committee
SMIDA	:	Small and Medium Industry Development Agency
SOPs	:	Standard Operating Procedures
SUZA	:	State University of Zanzibar
SVPo	:	Second Vice President office
SWISAID	:	Switzerland Aid
TAWIRI	:	Tanzania Wildlife Research Institute
TB	:	Tuberculosis
TOR	:	Terms of Reference
ToT	:	Training of Trainers
TVA	:	Tanzania Veterinary Authority
TWG	:	Technical Working Group
UN	:	United Nations
URT	:	United Republic of Tanzania
USAID	:	United States Agency for International Development
VP2	:	Second Vice President
WHO	:	World Health Organization
ZAHRI	:	Zanzibar Health Research Institute
ZALA	:	Zanzibar Land Animal Park
ZALIRI	:	Zanzibar Livestock Research Institute
ZAP	:	Zanzibar Action Plan
ZARI	:	Zanzibar Agriculture Research Institute
ZEMA	:	Zanzibar Environmental Management Authority
ZNCCIA	:	Zanzibar National Chamber of Commerce, Industry and Agriculture
ZOCGS	:	Zanzibar Office of the Chief Government Statistician
ZOHSC	:	Zanzibar One Health Steering Committee
ZOHTC	:	Zanzibar One Health Technical Committee

FOREWORD

The world is facing many challenges including the occurrence and spread of emerging and re-emerging zoonotic diseases, anti-microbial resistance and related biosecurity issues in human-animals and environmental interfaces. Therefore, collaborative global interventions are required to combat those challenges. The factors associated with this situation include the rapid growth in human and livestock populations, urbanization, changing farming systems, interaction between livestock and wildlife, forest encroachment, climatic changes, ecosystems and globalization of trade of animals and animal products. To achieve optimal health in humans, animals and environment, the public, private sectors and stakeholders must work together and join their efforts under the concept of One Health Approach. Global efforts currently taken in prevention and control of COVID -19, Avian Influenza H5N1 are good lessons to understand and to justify the need for universal integration as One Health approach. To make the approach more effective, key sectors such as health, agriculture, livestock and environment, must be committed, and take their responsibilities and incorporate One Health Approach in their policy, budget and plans.

The increasing burden of infectious diseases and growing of antimicrobial resistance are of a greater concern in Zanzibar. This has greater health consequences to humans, economic growth, livestock and agricultural industry as well as risk to the environment. To overcome these challenges, the Ministry of Health, Social welfare, Elderly, Gender and Children (MoHSEGC), the Ministry of Agriculture, Irrigation, Natural Resources and Livestock (MAINL) and Ministry responsible for Environment in Zanzibar have to work closely together to develop the Zanzibar One Health strategic plan. The strategic plan aimed to bring together multi-sectoral linkage, share commitments, responsibilities and resources in coordinated approach to address health related issues in humans, animals and environment as outlined in the strategic plan.

The strategy also identifies interventions to be undertaken by each government institution and other development partners for successful implementation of the One Health events. Implementation of the strategic plan will contribute to reducing the burden of infectious diseases; antimicrobial resistance and improving biosecurity, hence significantly improving economic productivity and the livelihood of the people of Zanzibar. In such, the Government developmental partners and non-government organizations are argued to allocate adequate resources and joint their effort in implementation of the strategic plan in Zanzibar within five years period (2021-2025).

Principal Secretary
Second Vice Present's Office
Zanzibar

ACKNOWLEDGEMENTS

The **Revolutionary Government of Zanzibar** wishes to thank United Nation Organizations and development partners namely World Health Organization (WHO), Food and Agriculture Organization of the United Nations (FAO), World Organization for Animal Health (OIE) for the technical and financial support. In addition, the government extends its appreciation to the Prime Minister's Office of the United Republic of Tanzania for their collaboration and guidance in developing this strategic plan. The government is thankful to all those who contributed to the successful completion of the Strategic Plan. Special appreciation goes to the team that worked tirelessly to write this Plan, including the following:

	Name		Institute
1.	Dr Fadhil Abass	:	MoHSEGC
2.	Mr Makame Makame	:	ZDMC
3.	Dr Talib Saleh Suleiman	:	MAINL
4.	Mr Muhiddin Omar	:	MoHSEGC
5.	Dr Abulrahman Said	:	MoHSEGC
6.	Mr Faki Kessi	:	MAINL
7.	Dr Maulid Hamdu	:	MAINL
8.	Dr Shaali Ame	:	MoHSEGC
9.	Ms Hidaya Hamad	:	MoHSEGC
10.	Mr Ali Said	:	MAINL
11.	Ms Asha Ussi Khamis	:	MoHSEGC
12.	Mr Ramadhan Juma Ramadhan	:	MAINL
13.	Mr Issa Mwalim	:	MAINL
14.	Mr Haidar Machano	:	ZEMA
15.	Dr Aaron Ringo	:	MAINL
16.	Mr Khamis Khamis	:	SVP
17.	Mr Hamza Hamza	:	MAINL
18.	Mr Shaaban Ramadhan	:	ZDMC-SVP
19.	Ms Fatma Hamad	:	MAINL
21.	Mr Khalid Masoud	:	MAINL
22.	Ms Amina Jabir	:	MoHSEGC
23.	Mr Ame Ame	:	MoHSEGC
24.	Dr Khadija Noor Omar	:	MAINL
25.	Dr Baltazar Leba	:	PMO-TZ
26.	Dr Niwael Mtui-Malamsha	:	FAO-URT
27.	Mr Harrison Chinyuka	:	PMO-TZ
28.	Dr Valentina Sanga	:	PMO-TZ

One Health Strategic Plan is a collaborative multi-sector discipline, groups working locally, nationally and globally to attain optimal health for humans, animals and the environment. The approach is initiated by the FAO, WHO and OIE, and is considered as the Global Health Security Agenda (GHSA) (WHO/FAO 2019).

Zanzibar has no exception to embark on one health strategy to detect, prevent and control zoonotic diseases, antimicrobial resistance, public health threats and related bio-security issues, for the health of humans, animals and their environment. The One Health Strategic Plan focuses on 23 priority zoonotic diseases, antimicrobial resistance, public health threats and related bio-security issues in its initial 5-year period (2021-2025). The report in 2011 report by Organization for Economic Cooperation and Development (OECD), shows that pandemics are a prime global catastrophic threat, which is consistent with a number of other assessments (OECD 2011). Potential losses resulting from a severe influenza pandemic, for instance, which may lead to 71 million human fatalities would be $3 trillion, or 4.8 percent of the global GDP.

In Zanzibar, the Second Vice President's Office (SVPO) is responsible for the coordination of the One Health activities. The strategic plan intends to improve the well-being of Zanzibar community by promoting collaboration in addressing One Health country priorities. This will be achieved through increasing awareness to the communities, strengthen preparedness plans, evidence-based research, institutional framework and provide functional and quality integrated human and animal health systems, at all levels in order to reduce the burden of zoonotic diseases, control antimicrobial resistance (AMR) and to manage biosecurity issues. The strategic interventions involve the thematic areas of coordination, training, advocacy and communication, preparedness and response, research, disease and AMR surveillance, prevention and control. Therefore, One Health Strategic Plan 2021-2025 will help to achieve the institutions coordination and performance for preventing and control of zoonotic diseases and combating AMR and management of biosecurity issues to humans, animals and the environment health (Health Security Agenda -WHO/FAO, 2019).

CHAPTER ONE: INTRODUCTION

One Health (OH) refers to the collaboration of multiple disciplines, sectors and groups working locally, nationally and globally to attain optimal health for people, animals and the environment. The approach is highly advocated by the WHO, FAO, and OIE and is considered as the Global Health Security Agenda (WHO/FAO, 2019).

The occurrence of emerging and re-emerging diseases in animals and humans, for instance COVID–19, Ebola, Middle East Respiratory Syndrome (MERS), avian influenza (H5N1), swine flu (H1NI), Severe Acute Respiratory Syndrome (SARS) shows how quickly balance changes and how vulnerable humans, animals and crops are to disease outbreaks (Mackenzie & Jeggo, 2019). The spread of the infectious diseases that emerge or re-emerge between animals, humans and ecosystems interfaces has not only become a public health crisis. But has also significantly impact the economy across the globe due to the reduced productivity, loss of life, business closures, trade disruption, and decimation of the tourism industry and thus there is a need for global solution (Calistri et al., 2013).

The priority areas which are public health threat in which a One Health approach is particularly relevant, including emerging and re-emerging zoonotic infectious diseases with epidemic and pandemic potential, combating antibiotic resistance and biosecurity, pollutants and environmental contaminants, food unsafety and dietary health risks (Dudley, 2004). To tackle these challenges, there is need for a comprehensive and proactive approach that draws on a wide array of technical and financial resources. The evidence suggests that successful prevention and control of these challenges requires a new One Health approach where collaborative efforts of multiple disciplines work together to attain optimal health for people, animals and the environment (Mackenzie & Jeggo, 2019). Globally, response to this serious public health issue has been taken by international organizations (WHO, FAO, OIE) and that these organizations support countries to develop a strategic plan for OH Approach and identification of prioritized zoonotic diseases and antimicrobial resistant pathogens circulating in humans and animal interface (WHO/FAO 2019).

Zanzibar, as other developing countries with fast growing population and tourism, is likely to be prone to the emergency of public health threats and related economic losses. It is therefore important to take measures to protect its people to ensure that such disasters do not happen. In this perspective, there is a need to develop a strategic plan for One Health under which such interventions at the environment-human-animal interface could be coordinated.

In this regard, a One Health strategic plan with clear vision, mission and goals is important in order to create and maintain active collaboration between the sectors for the prevention and control of zoonotic diseases and combating antimicrobial resistance has been developed. This is to ensure that there are timely preparedness and a consistent and coordinated response should a zoonotic event occur. The One Health Strategic Plan focuses on 23 priority zoonotic diseases, antimicrobial resistance, public health threats and related biosecurity issues in its initial 5-year period (2021-2025). This Strategic Plan will help focus and guide the government for the better use of limited resources for optimal impact.

1.1. Country Profile

1.1.1. Geography and population

Zanzibar is a semi-autonomous part of the United Republic of Tanzania that is located between 6.1357°S, 39.3621°E Unguja and 5.0319°S, 39.7756°E Pemba. Zanzibar is an archipelago formed from two main island of Unguja and Pemba in the Indian Ocean, 25–50 kilometres (16–31 miles) off the coast of the Tanzania mainland, and consists of many small Islands. Since independence in 1964, the Zanzibar population has been steadily increasing from 476,111 (1978 census) to 1,303,569 (2012 census) (*Country Profile*, 2018)"accessed":{"date-parts":[["2020",8,23]]}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"} . The population density for Zanzibar increased from 530 people/sq.km in 2012 to 603 people/sq.km in 2019. The projected population for the year 2019 is 1,625,589, with a marginal decline in female proportion to 51.3% compared with 51.5%. Life expectancy is 65 years (*National Bureau of Statistics - Zanzibar 2012*). This rapid increase of population has important implications for health service coverage. The capital city of Zanzibar is Zanzibar City, located on the Island of Unguja. Its historic centre is Stone Town, which is a World Heritage Site.

1.1.2. Climatic condition

The climate is tropical, hot all year round, with two rainy seasons: Masika season with more intense rain, from March to May and "Vuli" season with less intense rain, between mid-October and December. Average annual rainfall is about 1,600 millimetres (63 inches) in Unguja and 1,900 mm (75 in) in Pemba. April and May are the wettest months when downpours can be strong and cause floods. However, some short thunderstorms can occur mainly in rainy seasons. Temperatures are high throughout the year. The warmest period is from October to March, during which the maximum temperature hovers around 31/33 degree Celsius and the humidity is high, although the breeze tempers a little the heat. In the worst moments, the temperature can reach 36/38 °C. The period from May to August, when the southeast trade winds predominate, is cooler, with highs around 29 °C (*Country Profile*, 2018)"accessed":{"date-parts":[["2020",8,23]]}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"} .

1.1.3. Agriculture and natural resources

According to Zanzibar Agricultural Transformation for Sustainable Development 2010-2020, Zanzibar has a great potential for developing agriculture, taking into account its comparative advantage of having good soils and rainfalls to support crop production as well as natural pastures for feeding livestock. The great diversity of marine macro flora and fauna species and a variety of forest resources provides unique opportunity for the islands to fairly taking a lead in fulfilling the demand for domestic and export market of farm products, especially fruits and spices at the regional and international horizon (Economou & Gousia, 2015).

1.1.4. Economic Activities

1.1.4.1. The Agricultural Sector:

Currently, agriculture is one of the important sectors of the economy in terms of its contribution to GDP and employment. Notwithstanding these developments, and in view of close linkage between agriculture and tourism there is ample potential in agriculture particularly in commodities like coconuts, seaweed, fruits, spices, horticultural and livestock products.

1.1.4.2. Crop production

As pointed out earlier, agriculture is the dominant sector of the economy of Zanzibar. The crop subsector covers plantations of commercial and food crops. These crops include cloves, coconuts, cassava, sweet potatoes, bananas, yams, rice, maize, vegetables, beans, peas, pineapples, oranges, tomatoes and eggplant. Major food crops in their declining order of importance in Zanzibar, are cassava, banana/plantain, sweet potatoes, maize, vegetables, yams and rice as important food crops. Cassava and banana/plantain appear to be the most important crops not only as food crops but also as the major cash crops in the household economy of Zanzibar (Shoka, 2015).

1.1.4.3. Livestock

Livestock in Zanzibar is limited in number by a lack of financial resources. Livestock contribution in GDP was estimated to be 4.5percent (OCGS, 2012). According to Agricultural Sample Census in 2007/2008, the main types of livestock and poultry are cattle, goats, sheep, pigs, chicken, ducks, pigeons, turkeys, rabbits and donkeys. Zanzibar has an equivalent of 170,715 livestock units in total representing 228,538 major livestock of different species. The goat livestock units were about 13,794, sheep were about 114.8 and pigs about 1,005 units, cattle kept by 30% of the agricultural households. The trend shows that the number of goats increased by 31percent, sheep by 18percent and pigs by 10percent per annum, while the number of cattle had declined by 0.9percent between 2003 and 2008. The average number of cattle and goats per household was 4 and 9 respectively. Indigenous cattle (Zebu), goats, and chickens are the most commonly raised livestock in Zanzibar. Livestock production for the vast majority of farmers remains small-scale, with 71percent of cattle-raising Zanzibar population, keeping less than five heads. Exotic and mixed-breed animals can be particularly productive and profitable for farmers, especially with the expansion of Zanzibar's tourist market (Agricultural Sector Development Programme Report, 2016).

1.1.4.4. Fish and Marine Products:

Zanzibar's fishing is almost entirely artisanal conducted in the shallow waters along the coast. The entire fishing grounds are about 4,000 square kilometers for Unguja and 2,720 square kilometers for Pemba. Much of this area has coral reefs and a variety of flora and fauna making the region ideal for fishing. Indeed, there is enormous potential for increased production of marine products, through offshore and deep-sea fishing including processing, for both domestic and export markets (Economou & Gousia, 2015).

1.1.4.5. Manufacturing Sector:

Zanzibar's manufacturing sector accounts for between 5-6 percent of the GDP. However, the potential for raising its contribution to the economy is abundant through promotion of Micro, Small and Medium Industrials Development Agency (SMIDA).

1.1.4.6. Trade:

Zanzibar has a long tradition of importing and exporting trades in the East African region. The sector contributes between 15 to 18percent of GDP. Historically, the economy has been heavily dependent on export of cloves to about 98percent of total exports. However, the clove export trend is declining, and new areas of export (seaweed and spices) are emerging. However, there is a need to increase production, processing (value-addition) as well as broadening the product mix for improving economy. Further, in terms of trade, Zanzibar is one of the best geographically located islands in the world. As such she has competitive and comparative advantage regionally in directing exports and re-exports to the rest of the world (*ZOCGS, 2014*).

1.1.4.7. Tourism:

Zanzibar's tourism sector is a promising sector for attracting private investments. Currently the sector contributes 28% of Zanzibar's GDP. As a result, the capacity to accommodate tourists has also increased. There are numerous and attractive opportunities for investment in the tourism sector. The opportunities range from world class business hotels, conference centres, restaurant/catering facilities, including those providing traditional services, cruise ship transport, diving and game fishing, publication/printing, tourism and hotel training centres, conservation and site attractions.

1.1.5. Economic Development

Zanzibar's economy has been experiencing promising changes and according to Zanzibar Investment Guide document 2018-2019, the island economy grew to 7.5% in 2017 compared to 6.5% in previous years. Consequently, raising the per capita income from $830 in 2016 to $907 in 2017. According to the available data, agriculture and fisheries contribution the Zanzibar GDP decreased from 7.9 percent in 2017 to 2.6percent in 2019 (OCGS 2021), while industry and services sectors have also been adding their contributions to the economic growth.

1.1.6. Administrative structure

Zanzibar is divided into five administrative regions, three in Unguja and two in Pemba, with eleven districts. On the other hand, local government authority is divided into three municipalities (Urban, West A and West B) and nine town councils (North A, B, South Central, Micheweni, Chakechake, Wete and Mkoani). The lowest government administrative structure at the community level is the Shehia *(ZOCGS 2014*).

1.1.7. Wildlife

The wildlife of Zanzibar consists of terrestrial and marine flora and fauna. Its floral is categorized among the coastal forests of eastern Africa as the Southern Zanzibar-Inhambane coastal forest mosaic and the Northern Zanzibar-Inhambane coastal forest mosaic. Its faunal species are mostly small animals, birds, reptiles, and butterflies. The main island of Zanzibar, Unguja, has fauna, which reflects its connection to the African mainland. Wildlife areas are protected in many reserves and Jozani Chwaka Bay National Park. The Zanzibar Forestry Development Project and Zanzibar Integrated Land Development Project are two important projects which address wildlife surveys and monitoring (*NBS- Zanzibar 2008*).

1.1.7.1. National Park

Jozani Chwaka Bay National Park (JCBNP) covering an area of 50 square kilometres (19 sq miles), occupying the largest near-natural forest area on Zanzibar, located at the Southern Region of Unguja Island. Habitats within the park and associated protected lands include groundwater forest, coastal forest, and grassland, with mangrove forest and salt marsh on the coast. The fauna species found in JCBNP are the Zanzibar red colobus (*Piliocolobus kirkii*), an endangered species endemic monkey and the Aders's duiker. Moreover, wading birds are recorded in the marshy areas along with seaweed. The coral rag in the park has been exploited for agricultural development due to population pressure overtime is the earliest human settlement in the area.

1.1.7.2. Wildlife reserves

Ngezi forest reserve: It covers an area of 14.4 square kilometres (5.6 sq miles) located at the north-western tip of Pemba Island. It was declared a reserve in 1950 after most of the area had been denuded for cultivation of cloves. It has high closed forest extending right up to the beach at Vumawimbi. Dominant plant species found in the area are: *Odyendea zimmermanni* (Mjoho), riverine forest of *Barringtonia racemosa* (Mtomondo), *Milicia* spp (Mvule), *Alexandrian laurel* (Mtondoo), *Erythropholem* spp (Mwavi), *Antiarus* spp (Mgulele), *Chrisalidocarpus pembanus* (Mpapindi) and *Terminalia catapa* (Mkungu), and mangrove forest. Avifauna recorded consists of 27 bird species in the forest, out of which the endemic species are hadada, the African goshawk, the palm-nut vulture, scops owl, the malachite kingfisher and the Pemba white-eye. Other faunal species consist of Pemba flying fox (large fruit-eating bat), the Pemba vervet monkey, the Zanzibar red colobus monkey, hyrax, Pemba blue duiker (an antelope about the size of a hare), feral pigs (introduced by the Portuguese), the Javan civet cat (introduced by Southeast Asian traders for the production of musk) and marsh mongoose (an endemic carnivore).

1.1.7.3. Kiwengwa-Pongwe Forest Reserve

Kiwengwa-Pongwe Forest Reserve is located on the northeast coast of Unguja, 20 kilometres (12 miles) from the Zanzibar town and occupying 3604 hectares. The reserve is an important biodiversity spot in the coral rag zone. The forest reserve is rich both in faunal and floral species. The faunal species reported from the reserve are: Endemic species of red colobus monkey, Aders' duiker, sykes, blue monkeys, suni antelope and several species of snakes. The avifauna species

consist of 47 bird species, which includes Fischer's turaco, Zanzibar sombre greenbul, crowned hornbill and white-browed coucal.

1.1.7.4. Kidike Root Site

Kidike Root Site is in the central part of Pemba Island located close to Chake Chake is about 6 hectares. It has the endangered Pemba flying fox, considered the largest bat species in the world. Other animals in the island are the vervet monkeys, Mozambique cobras, tortoises, bush crabs, red eyed doves and mangrove king fishers.

1.1.7.5. Zala Park

Zanzibar Land Animals Park (ZALA) is a small reserve located about 5 kilometres from the Jozani National Park. It is where many animals could be seen in captivity. The animal species are big pythons, chameleons, geckos, tortoises, crabs, dik-dik, striped lizards, monitor lizards and hyrax.

1.1.7.6. Marine parks

Zanzibar has many marine parks, which are protected for their biodiversity. These are Chumbe Marine Park, Mnemba Marine Park, Misali Marine Park, Menai Marine Park, Tumbatu Island, Chapwani Island, and Changuu Island (Economou & Gousia, 2015; *NBS 2008*).

1.2. Overview of Zoonotic Diseases in Zanzibar

1.2.1. Societal factors

Animals and humans often live close together throughout the developing world. People are mainly dependent on livestock and poultry for food, clothing, fertilizer, draught power, and an important source of financial security. On the other hand, these animals and their products create disease risks for the human populations. It is estimated that among 1,400 pathogens causing human diseases, 800 are of animal origin (Levin, 2012; Chlebicz & Sliżewska, 2018), but public health practitioners rarely consider the implication of these types of infections in humans. According to the WHO, neglected zoonoses (the term "neglected" highlights that diseases affect mainly poor and marginalized populations in low-resource settings) affect about 2.7 billion people worldwide every year. The diseases commonly associated with poverty and impact the lives and livelihoods of millions of poor livestock keepers or those living in peri-urban slums primarily in developing countries (Hotez & Kamath, 2009; Bidaisee & Macpherson, 2014).

Public health and economic implication caused by zoonotic diseases on community cannot be underestimated. Burden of disease control and cost implication on elimination/eradication of animal diseases of zoonotic nature, decrease profit margin of livestock enterprises and elevated poverty among marginalized and rural community. Climate change, agro-ecological variability, ecosystem change, and urbanization may introduce different patterns of temporary and spatial zoonotic disease occurrence. Eating habits that include the uses of livestock and some wildlife animals like bats may

lead to the transmission of disease from animals to human (Singh *et al*., 2018; Gallego *et al*., 2020; Cupertino *et al*., 2020).

1.2.2. Burden and risk of Zoonoses in Zanzibar

In Zanzibar, not much has been done in terms of research to estimate the burden of zoonotic diseases in both animal and human populations. In a study conducted at Mnazi Mmoja Hospital, a total of 33 different pathogens were detected and some of them were zoonotic that included Rickettsia, *Brucella* species, *Coxiella burnetii, Salmonella* species, and Leptospira (Ali *et al*. 2020). Around the globe, zoonotic diseases are among the most common infections affecting animals and humans. Reports indicate that over 50% of the new infectious diseases in humans are caused by pathogens originating from animals or animal products, of which 70% have their roots in wildlife (WHO World Health Statistics, 2012).

Large number of cattle, goats and sheep are imported from Tanzania mainland and slaughtered for meat purpose. Nearly 80% of the meat consumed in Zanzibar originated from cattle imported from Tanzania Mainland. Tanzania is surrounded by many countries that are known to be endemic for viral haemorrhagic fevers including Ebola, Marburg, and West Nile virus and bats considered potential reservoirs of these deadly viruses (Towner et al. 2004; Leroy et al. 2005; Towner et al. 2007; 2009). Due to dynamic nature of the population and trade between Zanzibar and Tanzania Mainland, the diseases that occur in Tanzania Mainland are very likely to spill over to Zanzibar. Moreover, other zoonotic diseases are transboundary and can be introduced in Zanzibar from another continent rather than Africa. As the case of COVID 19 which started in Wuhan China and spread around the world. Occurrence of zoonotic disease in neighbouring countries to Tanzania and inside Tanzania mainland as reported before make Zanzibar at risk to be infected with those diseases. Example of zoonotic diseases available in Tanzania and neighbouring countries included Q-fever diseases (Prabhu et al. 2011; Zhang et al. 2016), Plague caused by *Yersinia pestis* (Ziwa *et al*., 2013), Anthrax (Mwakapeje 2016), Rift Valley fever (RVF) (Sindato *et al*., 2014) and rabies (Carrara *et al*., 2013; Ali *et al*. 2015; Devleesschauwer *et al*. 2016).

1.2.3. Potential Routes of Exposure

There is a huge interaction among humans, livestock and environment in which they are living. Most urban and rural community families keep at least one type of livestock such as poultry, cattle and goat in addition to the companion animals such as dogs and cats. This makes transmission of disease from animals to human population through direct contact to be easy. Increased demand of livestock products such as meat, milk and eggs due to increased population and tourist industry may increase the possibility of disease transmitted from animals to human especially, if proper livestock products processing is not considered. Zanzibar is not rich in wildlife biodiversity, eating bush meat is not common hence minimizes the risk of disease transfer from wildlife to livestock or human population. Among wildlife, bats are usually considered inedible by most groups of people in East Africa. However, people in Pemba, Zanzibar appear to be unique in that they hunt and eat bats (Walsh, 2009).

At least 11 species of bats (Order Chiroptera) are found on Pemba Island. The most hunted species is the indigenous Pemba Flying Fox, *Pteropus voeltzkowi*, followed by the Straw-coloured Fruit Bat, *Eidolon helvum*. Bats can act as reservoir of variety of zoonotic diseases. Previous studies indicate the role of bats as reservoir of diseases such as *Leptospirosis,* Henipaviruses and Lagos Bat Virus (IBV) (Mgode et al., 2014). Disease can be transmitted to human either by direct contacts with these animals or by eating uncooked or undercooked meats.

1.2.4. Zoonotic Disease Control Efforts

Zanzibar has inadequate technologies and resources to control the incidence of zoonotic diseases in both sectors of Livestock and human health. However, good policy and legal framework to combat the diseases are in place. Most zoonotic diseases controls are programme based and only works during project lifetime. This causing some of those zoonotic diseases, such as rabies, Tuberculosis (TB), Brucellosis, Cysticercosis, Plague, Salmonellosis and Anthrax to make sporadic appearance and reappearance among both livestock and human population, causing economic effects on livestock and social effects to human population (Rahman et al., 2020). In Zanzibar most livestock are kept by smallholder farmers who owned between one to seven cattle or goat and about 20 local breed poultry. Medium and larger scale livestock keepers are very few in number (about 5%) (OCGS, 2012).

Many zoonoses can be controlled and treated by providing safe and effective drug treatments to individuals in affected communities. The diseases thrive in places with poor sanitation and limited access to basic health care. They cause severe pain and life-long disabilities and are often less visible and have a low priority. Most livestock keepers lack knowledge of diseases and control measures. Consumption of unprocessed milk and meat is common in many places around Zanzibar. Most cattle shade and poultry housing are in poor sanitation leading to production of poor-quality animal products. Livestock services delivery in term of zoonotic diseases control is fragmented and uncoordinated. In the past, attempts to control zoonotic diseases have been carried out without involving key players on human and animal health. Although some successes were registered, the gains have not been sustained. This calls for an interdisciplinary, cross-disciplinary, and multi-sectoral approach to understand the complex dynamics of these zoonosis in order to help design appropriate interventions to address them.

1.2.5. Antimicrobial resistance

Antimicrobial Resistance (AMR) is the ability of the microorganisms to survive and replicate in the presence of a chemical that would normally kill or limit their growth. Microbial resistance to pharmaceuticals, pesticides, acaricides and other antimicrobial agents is a global One Health (human, animal and environmental) concern. It is an emerging problem in humans and animal health; threatening to reduce ability of antimicrobials to treat common infections in humans and livestock. Worldwide, AMR-related infections are estimated to cause about 700,000 deaths each year, and the number of deaths is expected to rise to 10 million by 2050 (Morgan *et al.,* 2011, WHO 2018).

Multidrug resistant (MDR) bacteria exists across the animal, human, and environment triangle or niche and there is interlinked sharing of these pathogens in this triad (Dromigny *et al.*, 2005; da Costa *et al.,* 2013several studies have reported the presence of multidrug-resistant bacteria in populations exposed to low levels of antimicrobial drugs or even never exposed. For many pathogens, especially those organisms for which asymptomatic colonization typically precedes infection (e.g., Enterococcus spp. and Escherichia coli). The consequences of AMR threaten the attainment of the Sustainable Development Goals (SDGs), recently agreed upon by UN member countries including eliminate Poverty and establish Good Health and Well-Being. To address this problem, the tripartite UN agencies (WHO, FAO, and OIE) have considered AMR as a global health security threat and so recently created a global action plan (GAP) to tackle the problem by supporting countries in the development of their National Action plan (NAP) on antimicrobial resistance. From such context, it is important to incorporate the AMR issues in prevention, preparedness, response, and recovery for different diseases in One Health approach. As part of the implementation of the International Health Regulations (IHR)-2005, the Revolutionary Government of Zanzibar (RGoZ) in collaboration with WHO conducted Joint External Evaluation (JEE) in April 2017 to assess the country's capacities to respond to public health threats. In that assessment, Zanzibar scored very low (Score of 1) in the AMR technical area - including laboratory capacity to perform culture and sensitivity tests plus AMR surveillance. Thus, it was recommended to improve the situation and comply with IHR, 2005. Moreover, it was found that there is no national plan for laboratory testing of existing priority pathogens as proposed by the WHO, except for *Mycobacterium tuberculosis*. In responding to the WHO recommendation, the RGoZ has established AMR Multi-sectorial Coordinating Committee to coordinate AMR activities. Consequently, Zanzibar Action Plan (ZAP) aimed to address AMR agenda has been developed under financial and technical support from FAO, WHO and the Fleming Fund. Implementation of the One Health Strategic Plan will focus on harmonizing prevention and control of zoonotic diseases and coordinate the implementation of AMR and biosecurity activities across sectors.

1.2.5.1. Situation analysis on Antimicrobial resistance in Zanzibar

As aforementioned, it is important to embark on the implementation of the Zanzibar Action Plan (ZAP) in relation to AMR. However, prior to that, a further situation analysis was deemed necessary. During that assessment, it was found that various pathogens recovered from clinical samples collected from humans or animals were resistant to a number of commonly used antimicrobials such as ampicillin, ciprofloxacin, ceftriaxone, gentamycin, cefuroxime, cefotaxime and ceftriaxone. Interestingly, some of those pathogens are zoonotic. These findings of the present situation analysis were consistent to the previous reports conducted in Zanzibar. Therefore, based on these situations the implementation of OH approaches which will potentially address AMR agenda should be of utmost importance.

1.2.5.2. The potential risk of development of AMR in livestock in Zanzibar

Livestock production in Zanzibar has been growing in recent years. This situation may be associated with the emergence and increasing burden of infectious diseases in livestock which in turn

increases the antimicrobial use. The overuse and misuse of antibiotics are major risk factors for the development of resistance among pathogenic bacteria in animals which may circulate into the environment and human interface. Therefore, improving the surveillance and understanding of antibiotic use is a key objective set-forth by the various United Nation agencies (OIE 2016). However, despite these initiatives, there is no regular surveillance program for antibiotic use in livestock and therefore to date, the trend of antimicrobials use in animals is not clear. Only few studies have been conducted in Zanzibar to determine AMR in animals or animal products. Those studies revealed occurrence of resistant pathogens (*Staphylococcus aureus, Escherichia coli, Proteus mirabilis* and *Pseudomous auerogionosa*) to several antibiotics (Onken *et al*., 2015; Omar *et al*., 2015; Suleiman *et al*., 2017; Rabia *et al*., 2017).

1.2.5.3. The potential risk of development of AMR in human in Zanzibar

The public health in Zanzibar as it is in many developing countries faces huge challenge of antimicrobial resistance. This is due to the fact that, use of pharmaceuticals without prescription has been common in our communities. The situation has been contributed by the presence of unlicensed drug stores that dispense over the counter pharmaceuticals without prescriptions from the qualified physicians. Additionally, the consumption of animal products from the animals treated with antimicrobial agents before the withdraw period contributes to the increased antimicrobial agents exposure in human bodies. Despite all the threats imposed by the AMR, there is limited awareness among the public, policy makers, prescribers and other professionals about the problem of AMR and its consequences. As a result, a broad range of bacteria show high resistance to commonly used antimicrobials. Subsequently, leading to treatment failure, and sometimes may cause death. Therefore, it is of paramount important to address this pandemic to save the human population. This will be achieved by improving the surveillance and understanding of antibiotic use in the public sector. In this contest, the incorporation of AMR in the OH strategic plan has come at the right time.

1.2.6. Biosecurity and biosafety

The three pillars of biosecurity (human, animal and environment) are shared by the One Health concept, biosecurity should be implemented with One Health in mind, especially when it comes to collaboration and cooperation among sectors in order to control the spread of pathogenic microorganisms. The term *biosecurity* has been applied more broadly to encompass efforts to prevent harm from both intentional and unintentional introduction of organisms to human health and infrastructure and the environment, as well as to the agricultural crops and livestock industries (McNeely *et al*. 2001; Meyerson and Reaser, 2002).

Biosecurity in One Health Approach implies when animal and plant pathogens present in neighbouring or within the countries, genetically modified organisms, the effects of climate change on the establishment and spread of exotic pests and diseases, and increases in illegal immigration (Lu *et al*., 2012). It is clear that the risks and uncertainties of significant impacts from harmful organisms is increasing as a result of the globalization of trade; travel; and transport; climate and

land use change; technological advancements; political instability; and crime (bioterrorism itself and other crimes, such as smuggling, that involve living, potentially harmful organisms) (Patrone *et al*., 2012).

Increasing globalization and the growing of tourism industry leads to increased movement of people around the world. In addition, importation of goods and animals increases the risk of harbouring undetected microbial pathogens strains which can circulate between one country to another and potential to become invasive and cause significant harm to humans (Mueller, 2019) and a detailed list of potential bioterrorism agents. Yet, it is argued here, one critical factor has been overlooked. Biological mediums are information carriers similar to - and far more complex than - cyber-digital carriers such as computers and the internet. Recent analyzes and experiments (\\cite{Ney2017,peccoud2018cyberbiosecurity}. On the other hand, advancement in transport technologies enable unintentional rapid introductions of microbial pathogens and thus provide opportunities to spread rapidly. These new technologies, which enable rapid genetic modification of specific traits which could be used for bioterrorism (van Aken & Hammond, 2003).

Moreover, travellers and their possessions can harbour and become contaminated with pathogens like Foot and Mouth Disease virus (FMD virus), and resistant microbes, seeds, or insect pests, or travellers may intentionally smuggle harmful biota into the country, which then escapes to the environment (McNeely *et al*., 2001). All aspects of human and environmental well-being are vulnerable to violations of biosecurity measures. To afford true protection; policies, regulations, and management strategies must be implemented through a comprehensive approach. The fragmented efforts, undertaken without cooperation and coordination among agencies will not suffice.

Zanzibar as an Island faces many biosecurity challenges include existence of many unofficial ports where high volume of trades is introduced and there is a possibility of increasing risk of smuggling biological threats.

According to the JEE assessment report of 2017 showed that; Zanzibar has some critical gaps in the implementation of biosafety and biosecurity principles including absence of biosafety legislation/ guidelines, oversight biosafety committees or biosafety officers, and limited capacity in bio-risk management and shipping of infectious substances. These issues can be addressed through the development of a comprehensive multisectoral One Health Strategic Plan incorporating issues of biosecurity.

1.3. Evolution of One Health Approach

1.3.1. Global Steps toward One Health

The One Health concept is a worldwide strategy for expanding interdisciplinary collaborations and communications in all aspects of health care for humans, animals and the environment. The synergism which will be achieved will advance health care for the 21st century and beyond by accelerating biomedical discoveries, enhancing public health efficacy, expeditiously expanding the

scientific knowledge base, and improving medical education and clinical care. Moreover, when OH properly implemented, it will help protect and save untold millions of lives in our present and future generations.

Consequently, following realization that human health (including mental health via the human-animal bond phenomenon), animal health, and ecosystem are inextricably linked, OH seeks to promote, improve, and defend the health and well-being of all species by enhancing cooperation and collaboration between physicians, veterinarians, and other scientific health and environmental professionals. The One Health Initiative is a call to action for the establishment of closer professional interactions, collaborations, and educational and research opportunities across the health science professions and related disciplines to improve health of people, animals, plants, and the environment. Our changing environment, especially climate change, poses a great challenge to humans and animals. These challenges require integrated solutions and call for collaborative leadership among all stakeholders.

The WHO revised the IHR in 2005 to provide a new framework for the coordination of events that may constitute a public health emergency of international concern, and for improving the capacity of countries to assess and manage acute public health risks. The IHR 2005 guidelines require that unusual health events, including zoonoses, be addressed by effective national surveillance and the establishment of human-animal coordinated response mechanisms at all levels. The IHR 2005 guidelines also require the inclusion of veterinary officers and wildlife experts in the national and sub-national public health emergency management committees when dealing with zoonotic events. At the 61st World Health Assembly in 2008, WHO adopted 20 key indicators for monitoring IHR core capacities at the national level and included two indicators specific to One Health. So each country is required to establish a mechanism for coordinating all relevant sectors in the implementation of IHR 2005 and establish a system for surveillance of zoonoses and potential zoonotic events.

In addition, the OIE has advocated for improved governance of zoonotic diseases by its member countries and urged improved collaboration between the human and animal health sectors as key in this process. In February of 2006, a tripartite agreement between FAO, OIE, and WHO created the global early warning system for the prediction, prevention, and controlling disease threats including zoonoses. Adoption and implementation of this One Health Strategy will help Zanzibar with effective implementation of the 2005 IHR guidelines.

1.3.2. Economics of One Health

The case for control of zoonotic diseases is compelling. The OECD report shows that pandemics are a prime global catastrophic threat—a finding that is consistent with a number of other assessments (OECD 2011). Potential losses resulting from a severe influenza pandemic, for instance, which may lead to 71 million human fatalities would be $3 trillion, or 4.8 percent of the global GDP. In addition, tackling endemic zoonoses would reduce a major source of human suffering and economic losses that disproportionately affects many of the poorest households in developing countries.

Echinococcosis, for instance, imposes a human and economic burden in developing countries that each year costs at least 1.5 million healthy life-years, as well as US$2 billion in livestock losses.

Control of a zoonosis requires early and rapid actions. A typical episode may involve a pathogen that originates in wildlife, then passes to livestock, and is then transmitted from livestock to humans. Exposure to the pathogen in animals could be followed by symptoms in animals. Then there is a rise of exposure in humans, who subsequently could develop symptoms, may seek treatment, and infect each other. If the disease reaches the point of spreading among humans, the disease will have already done substantial damage.

Moreover, the spread of the disease among humans at that point may be difficult to slow or reverse, and the cost of disease control will usually increase rapidly. This pattern of progression is evident from the high and rising cost of controlling HIV/AIDS, which is also of zoonotic origin. Thus, effectiveness of zoonotic disease control requires early detection at the source of the disease in animals, an early and accurate diagnosis, and rapid disease control measures, delays substantially reduce effectiveness. The more effective an approach is, the more lives it will save, and the higher the benefits in terms of avoided losses.

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

1.3.3. International Health Regulations (IHR) 2005

Member States use IHR 2005 to govern surveillance of public health emergencies of international concern. These guidelines were enacted in 2005 and came into force on 15 June 2007 and are legally binding for WHO Member States. In 2006, the Resolution AFR/RC56/R2 of the Regional Committee for Africa in Addis Ababa called for the implementation of the IHR (2005) in the context of the Integrated Disease Surveillance and Response (IDSR). IHR 2005 has an expanded scope to include all public health emergencies of international concern (including zoonoses). Successful implementation of IHR 2005 requires the fulfilment of 8 core capacities including legislation, policy and coordination, surveillance, preparedness, response, risk communications, laboratory and human resources for all levels including Point of Entries, as well as Potential hazards (zoonotic events). A developed checklist and indicators for monitoring progress in the development of IHR Core Capacities in State Parties

have been developed and have been defined using capability levels (i.e., the level of performance attained by a State Party for a given indicator, component and core capacity). The aim of the checklist is to enable self-assessment of the status of States Parties' core capacity development and identify areas for strengthening. The recommended checklist for monitoring progress of IHR core capacity development in zoonotic events according to capability levels is as follows:

1.3.3.1. Capability Level 1: Foundational

- Coordination exists within the responsible government authorities on the detection of, and response to zoonotic events.
- List of priority zoonotic diseases with case definitions available but not adequate.
- A regularly updated roster (list) of experts that can respond to zoonotic events is available.

1.3.3.2. Capability Level 2: Inputs and processes

- National policy, strategy or plan for the surveillance and response to zoonotic events are in place.
- Focal point(s) responsible for animal health (including wildlife) designated for coordination with the Ministry of Health and compliance with IHR 2005.
- Systematic and timely collection and collation of human and animal disease data is done.
- Access to laboratory capacity, nationally or internationally (through established procedures) to confirm priority zoonotic events is available.
- A mechanism for response to outbreaks of zoonotic diseases by human and animal health sector is established.

1.3.3.3. Capability Level 3: Outputs and outcomes

- Functional mechanisms for intersectoral collaborations that include animal and human health surveillance units and laboratories are established.
- Zoonotic disease surveillance that includes a community component is implemented.
- Information exchange between animal surveillance units, human health surveillance units and other relevant sectors regarding potential zoonotic risks and urgent zoonotic events.
- Timely response to more than 80% of zoonotic events of potential national and international concern.

1.3.3.4. Capability Level 4: Additional achievements

Country experiences and findings related to zoonotic risks and events of potential national and international concern have been shared with the global community.

CHAPTER TWO: STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS ANALYSIS FOR ONE HEALTH

2.1. One Health Capacity Development, Advocacy and Communication

Strengths	Weaknesses
• Existence of multi-sectoral management flow for the coordination of emerging events • Availability of local experts (multisectoral) • Existence of Second vice president office for institutional coordination and resource mobilization • Existence of institutes for Capacity and knowledge sharing • Availability of disaster and emergency committee • Presence of legal power to coordinate and command • Presence of Political stability • Flexibility in restructuring government organs	• Shortage of human resource capacity • Inadequate multisectoral coordination • In-adequate financial resources • In-appropriate of communication between the stakeholders • In-sufficient infrastructures • Political interference • Conflicting interest in different ministries. • Unstable organizational structure of ministries (similarly to departments, directorates, and units) • Conflict of interest on priority setting amongst key players
Opportunities	**Threats**
• Customs and culture that promote good health practices • Existence of development partners • Presence of regional and international organizations and policies that support OH	• Global economic crisis • Shifting of donor interest and priority • Political instability of neighbouring countries

2.2. Epidemic Preparedness and Response

Strengths	Weaknesses
• Availability of functional Animal Health and Production Centres in districts • Existence of well-structured surveillance system in health sector. • Availability of laboratories among OH sectors • Presence of skilled health and Veterinary personnel. • Availability of functional IDSR • Adequate meteorological system • Presence of Policy and Strategies supporting surveillance • Presence of Early warning system as well HMIS/EMA-I and Epidemiology Units	• Under-equipped Laboratories. • Inadequate veterinary services and infrastructure. • Inadequate of transport and other inputs (veterinary, medical, wildlife and laboratory). • Inadequate surveillance at PoE • Inadequate of Skilled Wildlife personnel • Inadequate of guideline and framework of surveillance system for Veterinary services • Inadequate of integrated system of environmental health • Inadequate environmental management and control • Inadequate capacity in emergency operation Centres • Unequipped National EOC and PHEOC • Inadequate public awareness and education. • Lack of updated risk mapping of diseases • Absence of vaccine, medicines and chemicals storage system at Agriculture and Livestock departments.

• Presence of legal framework (Disaster Management Act No. 1 of 2015, Zanzibar Food, Drugs and Cosmetics Act No.2 of 2006, Animal Resource Management Act No. 11 of 1999 And Public Health and Environment Health Act no. 11 of 2012) • Presence of Disaster Preparedness and Management Policy • Presence of Public Health Emergence Operating Centre • Allocation of Emergence Fund for disasters • IHR Focal point • High political will • Availability of SVPO DMC	• Weak animal health response system during disease outbreak • Weak multi sectoral coordination and communication • Presence of Porous Borders
Opportunities	**Threats**
• Existence of development partners who support OH. • Availability of funding agency including OPEC, USAID, DFID, SWISAID etc. • Presence of Regional Economic Communities (RECs) • Availability of external research institute e.g., ILRI • Existence of AU-IBAR	• Emerging of pandemic/epidemic diseases Donors interest in resource allocation.

2.3. One Health Research

Strengths	Weaknesses
• There are some research institutions conducting relevant and reliable research related to One Health • Existence of some multidisciplinary/sectoral research experts • Political will on importance of research which initiated the development of research institutions in Zanzibar • Availability of some infrastructure and resources for conducting OH research • Existence of linkages with regional and international research institutions in several institutions • Availability of rich and diverse natural resources for use in research	• Inadequate research collaboration among relevant One Health stakeholders' institutions • Inadequate multidisciplinary research experts • Limited information sharing among research institutions on One Health approach • Duplication of research by different institutions • Inadequate feedback of research findings to policymakers • Inadequate and scattered lab facilities and infrastructure • Output of One Health research is not used to inform appropriate policies • The Zanzibar Research Agenda 2015 to 2020 did not incorporate One Health

• Presence of an active PMO-Disaster Management unit • Existence of the newly established Zanzibar research institutes in human, livestock, agriculture and fisheries	
Opportunities	**Threats**
• Occurrence of emerging/re-emerging pandemic threats • Baseline information on one health are existing in different regional and international collaborating institutions • Existence of external funding agencies • Interest of development partners and innovation • Availability of EAC One Health forum • Existence of forum (e.g. TAWIRI, TVA, NIMR, AFROHUN) that can be used to provide research information and policy briefs	• Many research projects are not local demand driven • Global economic crisis • Competing priorities of the donor and local institutions • Most of donor funded projects are not sustainable • Customs and culture

2.4. Surveillance and Diagnostics for Prioritized Zoonotic Diseases (PZDs), AMR and Public Health Events

Strengths	Weaknesses
• Existence of epidemiology units and diagnostics laboratories • There is political will and stability • Presence of VP2-Disaster Management commission • Availability of electronic Integrated Disease Surveillance and Response (eIDSR) and Event Mobile Application (EMA-i) for capturing and transmitting animal health data • Availability of skilled human resources for conducting surveillance operations • Continuous favourable environment for implementation of disease surveillance, prevention and control in all seasons of the year	• Inadequate support for surveillance operations • Minimal applications of surveillance information for broader decision making • Inadequate and under - resourced laboratory facilities • Inadequate capacity for data analysis at District levels • Lack of guideline and framework of surveillance for Veterinary services • Poor surveillance data management system in livestock sector • Inadequate knowledge and understanding of zoonotic diseases and AMR • Inadequate veterinary services infrastructures such as holding grounds, quarantine stations, dipping facilities, cold chain facilities • Inadequate surveillance at Port of Entry (PoE) • Inadequate of implementation of eIDSR • Inadequate public awareness and education to support disease recognition and reporting

Opportunities	Threats
• Presence of Development Partners and funding Agencies that have interest, collaborate and support surveillance of PZDs, AMR and other public health events • Existence of OH initiatives in the AU IBAR, SADC, EAC (eg One Health forum) and other Regional Economic Communities (RECs) • Recognized needs for the multisectoral collaboration globally	• Occurrence of emerging/re-emerging pandemic threats • Inadequate of early warning system. • Time bound Project oriented Resources • Inadequate financial status/ cash-based flow • Uncontrolled movement of animals and humans • Microbial and chemical contaminations

2.5. One Health Coordinating Body

Strengths	Weaknesses
• Availability of Technical person in the different sectors (Ministry of Agriculture, MOH, Environment, SUZA etc). • Presence of communication officer within line Ministries for information sharing • Existence of Health Promotion Unit which act as hub for health promotion services whereby various communication channels are used to assist communication to the public • Existence of risk communication and community engagement in national and district level • Availability of risk communication and advocacy guidelines (Cholera, COVID-19 etc) at Second Vice President Office • Political will/acceptance • Existence of Local Government Authorities which increase workforce, joint planning and sharing of technical knowhow • Existing health structure in academic institutions (school health club, special designated Health teachers in all primary schools, Health platform in some Universities etc. • Presence of study findings (KAP study) which guide on communication objective. • Presence IEC/BCC Ethical clearance committee • Presence of digital health strategy which facilitate modern communication approach • Presence of Zanzibar Actin Plan for Antimicrobial Resistance (ZAP – AMR) (2019 - 2024)	• In adequate number of technical persons in different sectors • Weak orientation of risk communication guideline • Weak organized communication planning within line ministers • Inadequate equipment and essential tools for communication • Weak information sharing mechanism among the key actors • Weak Multi-sectorial coordination and collaboration in addressing public health threats. • Low awareness among decision makers on one health concept • Un harmonized and un integrates school health intervention • Uncoordinated Stakeholders, development/ implementing partners; influential people on implementation of one health intervention • Absence of Training institutions and University which offer one health course in Zanzibar • Absence of one health-based curriculum • Low priority within line Ministries • Absence of laboratory network system.

• Presence of functional AMR secretariat • Presence of aligned sector budget • Presence of different media houses which work very close with Government • Existence of Health promoters and mass communicators with inline Ministries	
Opportunities	**Threats**
• Presence of partners which support training and other issues • Willingness of partners to support in the particular area • Presence of aligned sector budget • Presence of different media houses which work very close with Government • Existence of health promoters and mass communicators within line Ministries	• Donor dependence • Competing priority (Donors) • Untimely disbursement of funds/Insufficient fund

CHAPTER THREE: FIVE YEARS PLAN

3.1. Background on the National One Health Strategic Plan

3.1.1. Core Values

The following are the core values that will guide the implementation of this strategic plan:

Collaboration: promote engagement and collaboration to achieve the strength of a united force working for the benefit of all

Adaptability: flexible, innovative and responsive to meet the changing needs of our society

Excellence: promote the highest standards of performance throughout the scope of One Health to ensure quality and continuous improvement at all levels

Teamwork: close working relationship with all stakeholders for synergy

Transparency: openness and willingness to promote and share in executing One Health

Resilience: recognising the varied staff, programme, disciplines, sectors and backgrounds with the ultimate aim of reaching a common goal.

3.1.2. Guiding Principles

The following principles will guide the implementation of this plan:

- Prevention and control of zoonoses is a national public good and requires strong political and financial commitment at national and county levels
- Sustainable utilization of existing institutions and whenever possible drawing on lessons learnt
- Use of a multidisciplinary approach to realize technical, political, and regulatory frameworks required to effectively manage zoonoses
- Science-based and continually adjust to new information and technologies
- Recognize and respect cultural diversity

3.1.3. Vision, Mission and Goals

VISION: A Nation with optimal health for people, animals and the environment.

MISSION: Improve the well-being of Zanzibar community through collaborative efforts locally, nationally, regionally and globally in addressing One Health country priorities.

GOALS:

1. Increase awareness on One Health for professionals, policymakers and the community.
2. Strengthen preparedness planning and improve the ability to respond to zoonotic disease outbreak. at all levels (Community, District, Regional and National).
3. Improve the health of human, animal and environment through evidence-based Research.
4. Provide functional and quality integrated human and animal health systems, at all levels, to reduce the burden of zoonotic diseases.
5. Strengthen institutional framework to support One Health implementation.

CHAPTER FOUR: OBJECTIVES AND STRATEGIES

Objective	Strategy	Strategic activities	Indicators	Means of verification
4.1. Thematic Area 1: Capacity development, Advocacy and Communication				
Goal: Enhance awareness on One Health for professionals, policymakers, and the community				
1. To increase awareness about One Health to 80% of at-risk population from identified priority zoonotic disease, antimicrobial resistance and biosecurity issues at all levels, by 2023.	0.1. Promote dissemination of OH related information	0.1.1. Develop OH communication strategy	• Number of OH communication strategy developed	• Presence of strategic reports.
		0.1.2. Develop OH awareness communication programs and materials (incl. posters, leaflets and brochures)	• Number of OH awareness communication programs aired. • Number of OH awareness communication materials produced.	• Video/audio clips records of responsible ministry • Presence of posters, leaflets and brochures published.
		0.1.3. Conduct sensitization programs to all stakeholders.	• Number of trained participants/ organizations	• Annual and final reports
	0.2. Improve OH Communication targeting behavioural change	0.2.1. Establish call centre for One Health	• Centre established	• Annual and final reports
		0.2.2. Develop and design audio and video clips including animation live radio and audio programs	• Number of audio/video clips produced	• Annual and final reports

Objective	Strategy	Strategic activities	Indicators	Means of verification
	0.3. To strengthen laboratory capacity on detection of diseases of public health emergency (DPHE) and carry out antimicrobial resistance (AMR) testing	0.3.1. Conduct lab assessment using standardized tools	• Number of assessments reports produced	• Presence of lab assessment reports
		0.3.2. Train laboratory personnel on detection of DPHE based on the gaps identified	• Number trained lab technicians	• Database of trained personnel
		0.3.3. Procure equipment, reagents and supplies based on the finding	• Number of equipment and reagents procured	• Equipment, reagents and supplies in place
		0.3.4. Enhance laboratories to participate in quality assurance (QA) programmes	• Number of programmes facilitated	• Presence of SOPs and quality assurance reports
		0.3.5. Enhance laboratories to perform AMR and antibiotics residues testing	• Number of tests performed	• laboratory reports
		0.3.6. Develop appropriate standard operating procedures (SOPs) based on procedures identified	• Number of SOPs developed	• SOPs for different tests in place R
2. To increase the knowledge based on OH initiatives about 80% of pre- service and 30% of in-services trainings by 2025.	2.1. Develop or adopt OH training curriculum in all learning institutions and schools across the country.	2.1.1. Conduct advocacy meeting to policy makers at the national level and districts	• Number of meetings conducted	• Meeting reports
		2.1.2. Conduct desk review to assess existing OH training curriculum concepts/ approaches	• Number of key sectors incorporated OH concept into the existing policies	• New policy statements on OH in place
		2.1.3. Review curriculum and incorporate OH issues	• Number of reviewed curriculums	• Presence of reviewed curriculums

Objective	Strategy	Strategic activities	Indicators	Means of verification
		2.1.4. Conduct OH stakeholder's meeting to validate reviewed curriculum	• Number of meetings reports	• Meeting and Annual reports
		2.1.5. Conduct OH training of trainers (ToT)	• Number of trainees	• Training reports
	2.2. Promote OH community trainings	2.2.1. Conduct awareness meeting to communities	• Number of awareness meetings conducted	• Awareness meeting reports
		2.2.2. Prepare information education materials (poster, leaflet and brochures)	• Number of training materials produced	• Presence of training materials
		2.2.3. Empower communities to carry out OH related activities	• Number of empowered communities	• Empowerment report
			• Number of meeting conducted	• Meeting reports
3. To increase awareness about One Health to about 80% of policy and decision makers by 2022.	3.1. Strengthen one health communication services to all respective Ministries at all level	3.1.1. Develop OH communication strategy	• Number of KAP studies conducted	• KAP study reports
		3.1.2. Develop IEC/BCC on one health concept and distributed to the Key Ministries, academic institution, livestock families and in Zanzibar community at large	• Number and type of IEC/ BCC materials developed and disseminated	• Presence of IEC/BCC materials produced • Dissemination reports

Objective	Strategy	Strategic activities	Indicators	Means of verification
		3.1.3. Initiate core communications advisory group or board (which consist of members from all key sectors)	• Presence of functional advisory committee	• Recommendations reports
	3.2. Improve OH Communication targeting behavioural change and information sharing among Ministries and other key actors	3.2.1. 3.2.2. Establish call centre for OH	• Functional call centre in place	• Number and types of alerts report
			• Number and type of lived questions asked	• Audience feedback report
		3.2.3. Conduct awareness training on OH information sharing at Ministerial level and key actors	• Number of trainings conducted	• Training reports
		3.2.4. Develop guideline on OH communication and information sharing among Ministries and key actors	• Guideline document developed	• Guideline document in place

Objective	Strategy	Strategic activities	Indicators	Means of verification
4.2. Thematic Area 2: Preparedness and Response				
Goal: To strengthen preparedness planning and improve the ability to respond to zoonotic diseases and any other public health events outbreak at Community, District, and National levels				
4. To formulate framework for preparedness and responses to zoonotic diseases and any other public health events at all levels by 2022	4.1. Establish multidisciplinary response teams	4.1.1. Establish OH teams for rapid emergence response.	• Number of team developed.	• Availability of OH response team.
		4.1.2. Allocate emergency preparedness (EP) funds for OH	• Availability of emergency preparedness funds for OH.	• Presence of EP funds
	4.2. Build capacity on preparedness and response of zoonotic diseases and any other public health events	3.1.1 Conduct simulation exercises.	• Number of simulation exercise report	• Simulation exercises report
5. To strengthen capacity on outbreak containment and management of cases by 2023 6. 7. 8.	5.1. Enhance RRT	5.1.1. Develop integrated guideline for RRT	• Availability of guideline	• RRT Guideline in place
		6.0.2. Train OH RRT on case management and proper IPC	• Number of trained OH RRT	• Training reports
		7.0.3. Train RRT on legal and movement control of humans and animals	• Number of RRT trained.	• Training report
		8.0.4. Identify areas for treatment centres in each district	• Number of functional treatment centres	• Number of functional district treatment centres.

Objective	Strategy	Strategic activities	Indicators	Means of verification
9. Rebuild society, post epidemic	9.1. Establish recovery mechanism for epidemic and public, zoonotic disease outbreak and antimicrobial resistance 9.2. 9.3. 9.4.	9.1.1. Develop recovery plans for psychosocial effects of the epidemic	• Developed psychosocial recovery plan.	• Availability of psychosocial Recovery plan.
		9.2.1. Develop practical guidelines on psychosocial support	• Number of practical psychosocial guideline developed.	• Availability of Psychosocial support guidelines.
		9.3.1. Conduct psycho socioeconomic support to affected families and companies	• Number of conducted psych-socioeconomic support.	• Psycho socioeconomic assessment report
		9.4.1. Develop restocking plans	• Restocking plan developed.	• Restock plan report
	9.5. Enhance efficiency of One Health SP	9.5.1. Conduct post outbreak joint risk assessment using existing tools	• Number of joint risk assessment conducted.	• Joint risk assessment reports
4.3. Thematic Area 3: Research				
Goal: Improve the health of human, animal and environment through evidence-based research				
10. To enhance Institutional collaborative Research projects on OH by about 80% in 2023	10.1. Strengthening and establish institutional agreement on collaborative research projects on OH 0.4. 0.5.	10.1.1. Develop guidelines and policies to reflect collaboration on OH among relevant research institutions and laboratories services	• Number of research guidelines and policies developed	• Research guidelines and policies in place
		10.1.2. Conduct inventory on existing institutional research capacity	• Number and list of Inventory produced	• Database of inventory on existing institutional research capacity developed
		10.1.3. Develop SOPs for all collaborating OH research institutions	• Evidence of OH SOPs	• One Health SOPs

Objective	Strategy	Strategic activities	Indicators	Means of verification
	10.2.improve the existing laboratories and human resource capacities	10.2.1. Procure laboratory equipment and supplies based on research needs	• Number of lab equipment and supplies procured	• Procumbent report
		10.2.2. Conduct trainings to the laboratory personnel on OH	• Number of trainings conducted • Number of trainees	• Training reports
		10.2.3. Review the Institutional policy and regulations on utilization of laboratory services	• Number of policies and regulations reviewed	• Reviewed policy and regulations in place
11. To facilitate OH research priorities and AMR to be in cooperated into the Zanzibar research agenda by 2023 1.	11.1. DMC and Zanzibar Research Department to organize meetings with other stakeholders to come up with the reviewed research agenda	11.1.1. Conduct needs assessment, workshops/ Seminars with stakeholders for reviewing the Zanzibar research agenda	• Number of workshops/ Seminars • Research agenda reviewed	• Meetings reports • Research agenda document in place.
	11.2. Enhance researchers to conduct applied research on OH	1.0.1. Conduct applied research for the benefit of communities	• ***Number of applied research conducted*** • Number of research findings disseminated to communities	• Research reports • Applied research adopted by communities

Objective	Strategy	Strategic activities	Indicators	Means of verification
12. To enhance utilization of OH research findings for improving policy change and development by 2023	12.1. Collect and centralize all research findings related to OH	12.1.1. Desk review and surveying of all the institutions for shelved research findings.	• Number of research documents and database in place	• Availability of research documents and database
	12.2. Disseminate the research findings to stakeholders and end users	12.2.1. Establish scientific forum to the stakeholders	• Number of scheduled forums are conducted	• Forums reports
		12.2.2. Conduct workshops to stakeholders and end users to disseminate findings	• Number of research findings are disseminated • Number of workshops and stakeholders	• Workshop reports
13. To strengthen financial resources to OH stakeholders by 2022	13.1. Mobilization of financial resources from different sources	13.1.1. Writing proposals for requesting grants from different sources	• Number of proposals in place	• Funded proposals
		13.1.2. Develop network with different partners.	• Number of functional network	• Functional network in place
4.4. Thematic Area 4: Disease Surveillance, Prevention and Control				
Goal: Functional and quality integrated human and animal health systems to reduce the burden of zoonotic diseases				
14. To promote and strengthen integrated surveillance of PZDs, AMR and other public health events at national and districts level by 2023.	14.1. Establish an integrated zoonotic disease surveillance system at national, and district levels.	14.1.1. Identify and develop a list of priority zoonotic diseases using standardised tool.	• List of priority zoonotic diseases identified.	• Multi-sectoral consultative meeting reports

Objective	Strategy	Strategic activities	Indicators	Means of verification
		14.1.2. Develop and disseminate guidelines for surveillance of PZDs, AMR and other public health events based on the existing disease surveillance guideline (OIE, WHO, FAO, etc.)	• Number PZDs of guidelines developed and disseminated	• Dissemination reports • Availability of PZDs guidelines
		14.1.3. Revise and disseminate surveillance tools for PZDs, AMR and other public health events	• Number and types of zoonotic disease surveillance tools revised and disseminated	• Availability of surveillance tools • PZDs Surveillance tools Dissemination reports
		14.1.4. Train on surveillance of PZDs, AMR and other public health events at all levels	• Number of personnel trained at National and district level	• Training reports
		14.1.5. Train personnel on data management		
		14.1.6. Raise community awareness on zoonotic diseases	• Number of shehia visited and sensitised • Number radio/ TV program aired • Number brochures/leaflets/ posters distributed	• Community awareness progress reports
		14.1.7. Develop an integrated surveillance database	• Integrated surveillance database developed	• Availability of surveillance database at National level
		14.1.8. Conduct PZDs quarterly surveillance meetings at National and district level.	• Number of meetings conducted	• Meeting report

Objective	Strategy	Strategic activities	Indicators	Means of verification
	14.2. Strengthen surveillance and information sharing at PoE.	14.2.1. Procure advanced screening tools at PoE	• Number of screening tools procured	• Availability of screening tools at PoE • Procurements reports
		14.2.2. Procure Personal Protective Equipment (PPEs)	• Number of PPE procured	• Availability PPE at PoE
		14.2.3. Develop and review emergency contingency plans of public health events at all official PoEs	• Emergency contingency plan for public health events developed	• Availability of Emergency contingency plan for public health events
		14.2.4. Conduct approved examinations/inspections of animals and animal products at the PoEs	• Number of animals screened at PoE • Number of animal products inspected	• Availability of animal screening services report at PoE
		14.2.5. Conduct biannually collaborating meeting with neighbouring countries for sharing of surveillance information	• Number of meeting conducted	• Meeting report
15. To enhance Diagnostic capacity for PZDs, AMR and other public health events at National (80%), and district (80%) levels by 2023	15.1. Strengthen laboratory capacity	15.1.1. Assess laboratory capacity (public health, vet laboratories I) using standardized tools	• Number of lab assessment conducted	• Assessment report

Objective	Strategy	Strategic activities	Indicators	Means of verification
		15.1.2. Build laboratories capacities based on identified gaps (physical, and human)	• Number of laboratories built and equipped. • Number technician recruited	• Implementations reports • Training report
		15.1.3. Strengthen laboratory network at National level	• Number of meeting conducted	• Meeting reports
		15.1.4. Harmonize SOPs for diagnosis of PZDs, AMR and other public health events	• Number of harmonized SOPs	• Availability of harmonized SOPs at laboratory
		15.1.5. Conduct training on diagnostic of PZDs, AMR and other public health events	• Number of lab technicians trained	• Training reports
		15.1.6. Strengthen quality management system in all laboratories	• Number of labs with quality management system • Number of labs/tests accredited	• Availability of lab with quality management system • Quality assurance audit report
4.5. Thematic Area 5: Coordination				
Goal: Strengthen institutional framework to support One Health implementation.				
16. To strengthened a cost effective and efficient OH coordinating Unit involving at least 70% of stakeholders established in the ZDMC SVP office by July 2025	16.1. Roles and responsibilities of coordination unit defined and agreed upon	16.1.1. Establish coordination mechanism for OH	• OH coordination secretariat is established and working (functional)	• Working report • Minutes of meetings

Objective	Strategy	Strategic activities	Indicators	Means of verification
		16.1.2. Conduct meeting for developing role and responsibilities of OH coordination unit.	• Number of meetings conducted	• Role and responsibilities (ToR) in place
		16.1.3. Map and identify a list of OH stakeholders in Zanzibar.	• Inventory of all stakeholders represented in OH coordination is available	• List of stakeholders in place
		16.1.4. Empower and to equip OH.	• Number of staffs in place, amount of funds received. • Number and type of working equipment available	• Inventory of equipment procured in place • Documents which shows amount of funds received • Number of staffs presents
		16.1.5. Establish mechanism for communication of OH team from Zanzibar and Tanzania Mainland for planning meeting, information sharing, and resource mobilization for joint activities (Semi-annually/ annually)	• Number of meetings conducted	• Meeting reports
		16.1.6. Establish mechanism of information sharing and communication during disease out breaks when happen either in Zanzibar or Tanzania Mainland	• Information sharing guideline established	• Report of disease outbreaks shared

Objective	Strategy	Strategic activities	Indicators	Means of verification
	16.2. Technical Working Groups (TWGs) are functional, active and well-coordinated	16.2.1. Identify sectors that correspond to each TWG thematic area	• Number of Ministries and sectors which constitute TWGs • Number of TWGs established • Number of ToR for each TWG developed	• Inventory of Ministries and sectors which constitute TWGs • List of TWGs established • Availability of ToRs of each TWG
		16.2.2. Conduct meetings quarterly for each TWGs for planning and implementation of activities in each thematic area	• Number of meeting conducted • Number of reports produced	• Meeting reports
17. To establish a mechanism to facilitate and collaborate OH activities with the relevant ministries, agencies and other organizations by average of 60% by 2023.	17.1. Establish mechanism of collaboration and operationalise of TWGs	17.1.1. Develop guideline to facilitate collaboration and functional of the TWGs	• Number of guidelines developed	• Presence of guideline document
		17.1.2. Establish linkages among TWGs from National, district and Shehia levels	• Number of regular meetings conducted by TWGs	• Meeting reports

The aim of the OH approach is to diminish the threat of emerging and re-emerging infectious diseases and minimize the impact of endemic zoonoses, antimicrobial resistance and biosecurity. This OH strategic plan is based upon recognition of the intimate linkages among the human, animal and ecosystem health domains. It proposes an interdisciplinary, cross-sectoral approach to disease surveillance, monitoring, prevention, control and mitigation of endemic and emerging diseases. Pooling resources will lead to economies of scale and enable common problems across systems to be addressed in a targeted manner without duplication. This OH strategic plan will be achieved by pursuing three broad approaches.

First, to enhance capacity for zoonotic disease and antimicrobial resistance prevention and control, particularly in the animal sector that has traditionally been under-resourced.

Secondly, to facilitate collaboration between animal and human health sectors, as well as players in the ecosystem in areas of common interest. These include disease surveillance, early detection, rapid response, education and research.

Finally, to conduct applied research at the human-animal-ecosystem interface to fill gaps in the understanding of mechanisms of transmission of zoonotic diseases and antimicrobial resistance in order to better formulate prevention and control strategies for these diseases.

5.1. Strategic Interventions

Zanzibar's One Health Strategic Plan 2021-2025 focuses on five thematic areas in consonance with its objectives as outlined below:

1. Capacity development, advocacy and communication
2. Preparedness and response
3. Research
4. Disease surveillance, prevention and control
5. Coordination

5.1.1. Capacity development, advocacy and communication

Goal: Enhance awareness on One Health for professionals, policymakers and the community

The aim of this goal is to create awareness on One Health for professionals, policy makers and the community in Zanzibar with little knowledge of zoonotic diseases and antimicrobial resistance. Extent of how they spread or the health and socio-economic impact on the nation and society at large, it will be difficult for policy makers to accept and appreciate the public health implications of zoonosis and antimicrobial resistance and allocate appropriate resources for control, management and prevention. Not only do professionals fail to appreciate the epidemiological and relational nature of the zoonosis, but they also function within a disorganized and disintegrated system. The current system is unaware of the best approach to integrated management and coordination that will help articulate management measures. This would undermine rational utilization of the scarce national

resources to control and prevent existing and emerging zoonosis, antimicrobial resistance and biosecurity issues. Further, the community continues to bear the burden of diseases that regularly cause major public health hazards, social disruption and economic stress. Under this strategic goal, issues related to education, advocacy and communication for awareness and information are emphasized and given proper attention. Three strategic objectives have been identified to achieve the above goals. These are:

1. To increase awareness about One Health to 80% of at-risk population from identified priority zoonotic disease, antimicrobial resistance and biosecurity issues at all levels, by 2023.
2. To increase the knowledge base focused on One Health initiatives about 80% of pre-service and 30% of in-services trainings by 2025.
3. To increase awareness about One Health to about 80% of policy and decision makers by 2022.

Objective 1: To increase awareness about One Health to 80% of at-risk population from identified priority zoonotic disease areas, antimicrobial resistance and biosecurity issues at all levels by June 2023

Increasing awareness will be a nationwide event beginning from the top policy makers to regional and districts leadership and stakeholders stretching all the way down to the community and villages across the country. Since the One Health concept is new within the country's context, it is essential that all stakeholders and communities are well informed, educated and equipped to respond appropriately. The importance to leaders and policy makers cannot be over emphasized. They are the best placed to influence the direction the nation could take and are the most trusted source of information as the peoples' representatives. These groups are also influential at the level of resources mobilization and lobbying for the best legislation. The community is one among the groups that are immediately affected by zoonotic diseases, antimicrobial resistance and biosecurity. A unified and integrated approach to health care of the affected, prevention and control is better achieved through inclusive and appropriate communication system at all levels. Approaches to achieve this objective include the development and operationalization of One Health communication strategy and sensitization of communities through different media for information, communication and education to enhance changes in behaviour and preventive practices.

Objective 2: To increase the knowledge base focused on One Health initiatives in 80% of pre- service and 30% of in-services trainings by July 2025

Building and developing the knowledge and skill base of professional and technical staff in institutions of higher learning countrywide is a necessary and essential intervention that will ensure that the country has the human resource capacity

needed to respond to and manage zoonotic diseases, antimicrobial resistance and biosecurity. Including One Health teaching within all institutions of higher learning, such as colleges and universities will help ensure that both new and in-service professionals are well coached, informed and trained in approaches to One Health in Zanzibar. This will further reduce the cost and saver resources invested in recurrent workshop and short courses. There are two strategies to achieve this objective. The first is to develop or adopt One Health training curriculum in all institutions of higher learning across the country. These involve to conduct relevant training to in-service human and animal health workers to ensure they have the right knowledge and skills to appropriately respond to and manage zoonosis, antimicrobial resistance and biosecurity issues.

Objective 3: **To increase awareness to policy and decision makers on One Health by 80% on 2022**

Engaging policymakers, including the political class, development partners and decision makers, is essential and necessary if the One Health approach is to function efficiently and attract attention, resources and succeed in implementation. Legislation, regulations and policies will only pass when each of these groups are adequately sensitized, engaged and convinced to consider the intervention as a priority. Lobbying and advocacy by technical teams and other stakeholders interested in pursuing the issues to the benefit of larger society will ensure the sustainability of the proposed One Health activities. It is only when the hearts and minds of such leaders are won, that influence is assured, leading to allocation of the required resources.

5.1.2. Preparedness and response

Goal: **Strengthen preparedness planning and improve the ability to respond to zoonotic disease outbreak, antimicrobial resistance and biosecurity at all levels (community, District, Regional and National)**

Current emergency preparedness teams in Zanzibar are not formalised to reflect One Health multi-sectoral and coordinated approach, except under very specific circumstances in which different sectors come together due to highly sensitive outbreaks. Many government agencies and major stakeholders are addressing One Health activities in isolation, with a weak information sharing mechanism, lack of integrated and coordinated investigation guidelines and incomplete preparedness plans, response to outbreaks remains a huge challenge. Amidst these challenges, inadequate laboratory capacity for diagnosis of emerging and re-emerging of infectious pathogens (biosafety level) is common, coupled with limited financial and human resources. In addition, lack of isolation facilities for patients where highly infectious diseases are handled remains a major deterrent to response, amidst the changing patterns of emerging and re- emerging diseases. Two strategic objectives have been identified to achieve the above goals. These are:

1. To formulate a framework for improving capacity for preparedness to respond to zoonotic disease outbreaks and any public health threats at all levels by 2022.
2. To strengthen capacity on outbreak containment and management of cases by 2023
3. (To strengthen the coordination of emergency preparedness and response to zoonotic disease outbreak, antimicrobial and biosecurity among relevant ministries and agencies by 2025.)
4. Rebuild society, post epidemic

Objective 1: To develop a framework for improving capacity for preparedness to respond to zoonotic disease outbreaks and any public health threats at all levels by 2022

A One Health framework will provide a mechanism for improving human resource capacity through tablet and field trainings, as well as support emergency response teams. The Second Vice President Office can help coordinate teams from relevant Ministries based on response needs for emergencies. The framework will also be used as a tool for funding priorities and informed decisions about establishing government supported emergency preparedness funds. As funding remains a major challenge, initiating a robust and efficient mechanisms to mobilize resources is essential. One Health strategy will focus on setting up systems to ensure the availability of sustainable resources. To achieve this, relationships with both external and internal technical institutions, experts, funding agencies, donors and other interested parties will be pursued vigorously through sensitization meetings and inter-ministerial meetings.

Objective 2: To strengthen the coordination of emergency preparedness and response to zoonotic disease outbreaks, antimicrobial resistance and biosecurity among relevant Ministries and agencies by 2025

Coordinating emergency preparedness and response to disease outbreaks and emergencies related to zoonosis, antimicrobial resistance and biosecurity is an essential component of the disease management process. Experts within the health, livestock and wildlife fields can be utilized to develop integrated disease- specific data collection documents, guidelines and contingency plans. Developing integrated guidelines will allow multi-sectoral teams to conduct disease outbreak investigations using the same tools and means of documentation and reporting. Revising Standard Operating Procedures (SOP) for preparedness and response to outbreaks, to include both human and livestock health elements will ensure that information is streamlined and easily distributed to all relevant Ministries.

5.1.3. Research

Goal: **Improve the health of human, animal and environment through evidence-based research**

There is generally a lack of well-coordinated approaches to conducting research by different institutions due to the lack of streamlined research priorities. Many of the research projects conducted by different sectors are not need-driven and are conducted in a non-coordinated manner by the sectors. Even after the research are conducted and published, information on research findings are not shared between institutions or policy makers, as there is a lack of a well-established channel of communication.

Policy makers lack essential information and knowledge of the importance of One Health research, thereby they fail to make it a priority at the governance level. Stand-alone projects fail to gain enough funding from the government once donors withdraw their support upon the end of a project. Failure to prioritize One Health research also impacts the number of research facilities and infrastructure, as well as creates a shortage of multidisciplinary research experts. Research forms an important part of building evidence for knowledge and decision-making. Conducting research in a collaborative and integrated manner helps different institutions, departments and partners to improve efficiency in terms of information sharing, the establishment of commonality in implementation of programs related to One Health and cost minimization. Three strategic objectives have been identified to achieve the above goals. These are:

1. To enhance institutional collaborative research projects on One Health by about 80% in 2023
2. To facilitate OH priorities and AMR to be in cooperated into the Zanzibar research agenda by 2023
3. To enhance utilization of OH research findings for improving policy change and development by 2023
4. To strengthen financial resources to OH stakeholders by 2022

Objective 1: **To enhance institutional collaborative research projects on One Health by about 80% in 2023**

Enhancing collaborative efforts among institutions implementing One Health research programs will support more robust and complete findings without duplication of effort. Research conducted by experts from complementary fields will provide unique data focused on zoonotic diseases, antimicrobial resistance and biosecurity will also increase communication among relevant Ministries, stakeholders and research partners. As institutions and ministries agree to conduct collaborative research, Memorandum of Understanding (MoU), or other official contracts must be agreed upon, including roles and responsibilities, as well as data and material management. When efforts are combined, resources are more effectively utilized and waste is

reduced, while knowledge and information is shared. One of the strategies under this objective is to improve existing laboratory and human resource capacity by investing in appropriate equipment and supplies. Capacity development of technical personnel through training ensures availability of personnel that are competent and qualified to be able to conduct the required research. To ensure that research efforts are in line with priorities and that findings are shared in the most effective manner, Zanzibar should have an accurate inventory of past and current research. Collecting and organizing information about research conducted in laboratories and research facilities will serve as an indicator for emerging priorities.

Objective 2: To facilitate OH priorities and AMR to be in cooperated into the Zanzibar research agenda by 2023

This objective reflects the need to identify research themes and the zoonotic diseases, antimicrobial resistance and biosecurity that have maximum impact on the health of the population to attract the desired attention and invest accordingly. Collaborating relevant Ministries, partners and institutions can maximize utilization of resources by proposing research programs that will contribute to the reduction of the disease burden. The strategy aligns with the existing national research agenda that acts as a roadmap based on the country's zoonotic disease, antimicrobial resistance and biosecurity priorities. Another strategy includes holding workshops to discuss barriers to coordinated research and to explore concrete approaches to overcoming them, as well as discuss methodologies and research results, and lay the groundwork for future research and publication.

Objective 3: To enhance utilization of OH research findings for improving policy change and development by 2023

This effort will strengthen knowledge and appreciation among leaders. When leadership is fully engaged and involved, the opportunity for lobbying to increase resource allocation and dissemination of information is boosted. As a strategy, communicating One Health concepts to policy and decision makers will be implemented through meetings, conferences, workshops and seminars, and information will be shared through briefs.

5.1.4. Disease surveillance, prevention and control

Goal: Establish functional and quality integrated human and animal health systems to reduce the burden of zoonotic diseases, antimicrobial resistance and biosecurity

Disease surveillance is the continuous systematic collection, analysis and interpretation of health-related data needed for the planning, implementation, and evaluation of public health practice. It is also critical for detecting and managing outbreaks, monitoring the

impact of interventions and reducing disease. Surveillance can serve as an early warning system for impending public health emergencies; track progress towards specified goals; and strengthen monitoring and evaluation of the epidemiology of health problems, to allow priorities to be set and to inform public health policy and strategies (WHO, OIE and FAO).

A weak coordination mechanism, exacerbated by the behaviour of different sectors preferring to work in isolation, remains a hindrance to better surveillance, prevention and control of diseases. Poor coordination, poor inter-sectoral laboratory sharing policy and a lack of harmonized disease surveillance guidelines cause apparent inefficiencies in governance. Similarly, laboratory human resource capacity and infrastructure is insufficient, lack of adequate financial resources continue to undermine improvement, as no progress can be made without funding.

There is weak information sharing on disease surveillance between sectors. Generally, there is an inadequate adherence on prevention and control guidelines due to inadequate knowledge, information and skills that would enhance prevention mechanisms at all levels of society. Numerous and diverse disease reservoirs continue to contribute to an upsurge in new and emerging zoonotic diseases, antimicrobial resistance and biosecurity. Two strategic objectives have been identified to achieve the above goals. These are:

1. To promote and strengthen integrated surveillance of PZDs, AMR and other public health events at national and districts levels by 2023
2. To enhance diagnostic capacity for PZDs, AMR and other public health events at national (80%), and district levels (80%) by 2023

Objective 1: To promote and strengthen integrated surveillance of PZDs, AMR and other public health events at national and districts levels by 2023

Communication and coordination among national disease surveillance and response networks are vital in ensuring timely response to public health events. Globally, zoonoses account for the majority of emerging infectious disease events, and domestic animals and wildlife are well-known reservoirs of many diseases of public health concern. Effective multi-sectoral One Health networks play key roles in disease detection, identification, reporting, and response leading to a decrease in disease burden on both humans and animals. Although systematic information sharing between the human and animal health sectors can help decision makers detect and respond to zoonotic diseases, AMR and biosecurity issues rapidly, resource constraints and other barriers often prevent efficient cross-sector coordination.

Success of any multi-sectoral zoonotic collaboration is reliant on identifying and establishing, or building upon, current modes of communication across traditional and non-traditional public and animal health stakeholders to combat priority zoonotic diseases, antimicrobial resistance and biosecurity and establishing as well

as implementing robust national strategies on the prevention, detection, and control of zoonotic pathogens. An important activity to support enhanced surveillance to map the laboratory and surveillance networks currently in place for detecting and reporting priority zoonotic diseases, antimicrobial resistance and biosecurity in Zanzibar. Mapping of zoonoses and the burden of such diseases can help identify hotspots where zoonoses cause significant burdens on health but also where efforts can be focused to improve prevention, communication, and coordination across human and animal health sectors.

Objective 2: **To enhance diagnostic capacity for PZDs, AMR and other public health events at national (80%), and district levels (80%) by 2023**

To enhance zoonotic disease diagnostic capacity, detection of antimicrobial resistant pathogens and improve biosecurity issues both medical (human) and veterinary laboratories. To do this successfully, laboratory infrastructures will be expanded and improved; modern equipment and supplies provided and human resource capacity be developed through training and mentorship. Developing a working group to build a framework for port of entry surveillance in order to enable formal sharing of information with neighbouring countries is an important aspect of building diagnostic capacity. Inter-ministerial meetings with neighbouring countries' leadership will enable improvement of PoE detection and reporting of infectious disease outbreaks, epidemiological investigations, surveillance-specific laboratory capabilities and communications systems, as well as surveillance and epidemiology related training.

5.15. Coordination

Goal: **Strengthen institutional framework to support One Health implementation.**

Coordination of One Health initiatives and activities under one national umbrella is essential for providing effective leadership, efficient response to epidemics and better management of resources. Through the One Health coordination body, it is envisaged that institutions will be strengthened, collaboration enhanced, resources mobilized, research coordinated, and information availed on time.

Due to the lack of multi-sectoral One Health coordination, there is nothing to unify the different sectors and institutions that perform similar roles in an integrated manner. Ministries, sectors, departments and institutions continue to work in isolation, while also dealing with bureaucratic barriers. Low perception of the burden of zoonoses, antimicrobial resistance and biosecurity among policy makers, politicians and the general public is common, and there is inadequate integration of One Health in Universities/Institutions curriculum. Laboratories are few with inadequate capacity (human, infrastructural and financial) for diagnosis of many infectious pathogens (biosafety level). Misconception and

conflicting roles of One Health among experts is another hindrance to a better approach to achieve a common goal. Two strategic objectives have been identified to achieve the above goals. These are:

1. To strengthen a cost effective and efficient OH coordinating unit involving at least 70% of stakeholders established in the ZDMC SVP office by July 2025.
2. To establish a mechanism to facilitate and collaborate OH activities with the relevant ministries, agencies and other organizations by average of 60% by 2023.

Objective 1: To strengthen a cost effective and efficient OH coordinating unit involving at least 70% of stakeholders established in the ZDMC SVP office by July 2025

The Coordination of One Health will be through the Second Vice President Office (SVPo), ZDMC. This Commission is already responsible for coordination of other important and related government activities specifically disaster management. With vast experience and influence, it will be a unifying entity as the trust has been built and responsibility fully defined. A mechanism for facilitation and collaboration of One Health activities with the relevant ministries and other stakeholders will be established and operationalized. To achieve this, roles and responsibilities of the coordination unit will be defined and agreed upon by the stakeholders who are mainly the technical sectors and institutions brought together for the purpose. TheTWGs will be formed to identify roles and contribution expected of each sector. The TWGs are charged with specific technical duties required of them and will meet regularly and advise the coordination unit as appropriate. By playing their role as required, each TWG will bring the positive contribution to the steering committee and add more value to functioning of the coordination unit.

The strategy will provide guidelines on all resource mobilization that the zoonotic disease, antimicrobial resistance and biosecurity control unit will engage in. The TWG to provide oversight and coordination shall meet on quarterly basis. Funding concept papers and proposals will be developed and submitted to groups and organizations based on outcomes of advocacy meetings. Proposals for support to zoonosis control interventions will continue to be submitted to development partners and funding agencies. The TWG will engage with potential donors, government and other funding agencies to advocate for more resource allocation to government. The coordination unit along with TWG will facilitate review of the programme performance, address implementation challenges and review the available resources against the program needs. Regular performance reporting on grants will be institutionalized using a standard format. The unit will further engage partners locally, regionally and internationally for behaviour change at the community level, resource mobilization and to advocate for policy and legislative environment.

Objective 2: **To establish a mechanism to facilitate and collaborate OH activities with the relevant ministries, agencies and other organizations by average of 60% by 2023**

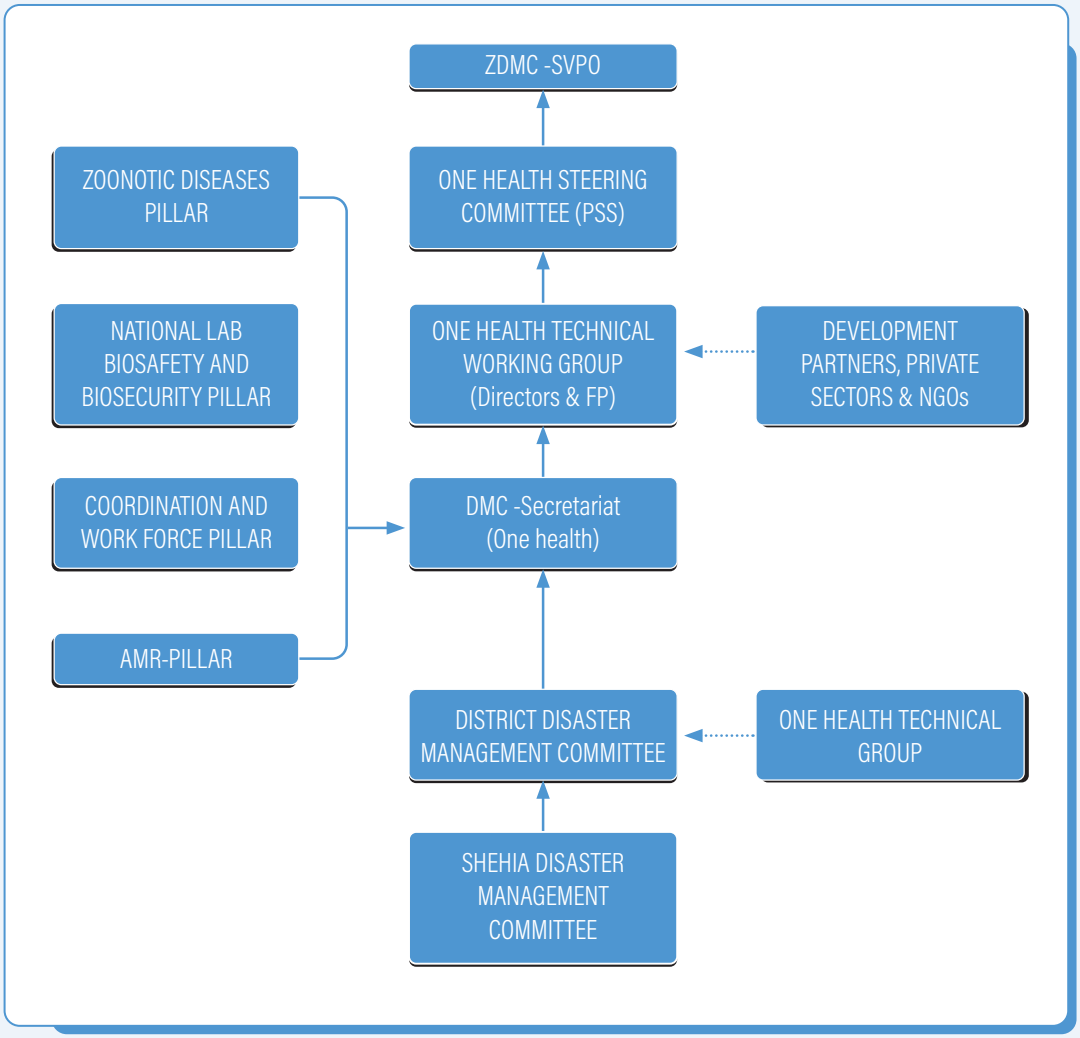
The role of the coordinating body will mainly be that of providing oversight including supervision, setting policies and related strategies, as well as legislation and regulations. The unit will play a coordination role to convene meetings, communicate agenda and provide venue to host them. The unit will closely work with the technical working groups and steering committee to coordinate implementation of One Health among ministries, agencies, institutions and other organizations to articulate matters of national priority as related to One Health and facilitate resource mobilization effort.

The success of a national One Health coordination will largely depend on a well functional unit that is better equipped, well-staffed with competent and technically enriched personnel that will provide management/coordination oversight. It is therefore essential that such competence be identified from the diverse background that will enrich the unit in order to ensure adequate representation of the relevant technical sectors that will compose the unit. It is also equally important later on to compose a well-integrated team of regional and district expertise for smooth implementation and One Health projects at the lower levels.

Staff capacity and abilities will be enhanced through involvement in national, regional and international conferences, meetings, workshops and trainings. This will not only enhance their knowledge, but also strengthen their capacity to learn and articulate state of the art of zoonotic disease prevention and control technologies, policies and strategies for implementation of efficient and technically sound program. The working environment will further be improved through identification and equipping of office infrastructure, plant, logistics, equipment, utilities, communication and connectivity. To discharge its coordination role effectively, the unit will take the lead in supporting, coordination and facilitation of TWGs while at the same time conducting regular performance monitoring and review meetings.

5.2. Organizational Chart and Functions

5.2.1. Organizational Chart



5.2.2. Disaster Management Committee in the Second Vice President's Office

The Revolutionary Government of Zanzibar has established the following multi-sectoral teams to spearhead the management of outbreak of zoonotic diseases, antimicrobial resistance, and biosecurity in Zanzibar. This is a top-level committee of One Health and is chaired by the Second Vice President of Zanzibar. The Commission of Disaster Management in the SVPO will coordinate the ZOHSP in collaboration with other responsible Ministries.

a) Zanzibar One Health Emergency Steering Committee

The Zanzibar One Health Emergency Steering Committee is chaired by the Principal Secretary in the Second Vice President's Office of Zanzibar. The committee receives information from the one health technical working group. The steering committee meets on a regular basis (quarterly) but also upon the emergency situation to review the status of the country zoonotic diseases, antimicrobial resistance and biosecurity issues. Additionally, the steering committee will review the global situation and outline suggestions that will be forwarded to DMC. Steering committee comprises the following members: -

i. Principal Secretary Second Vice President – Chairperson
ii. Executive Director of DMC – Secretary
iii. PS responsible for Finance and Planning
iv. PS responsible for Health
v. PS responsible of Communication and Transport
vi. PS responsible for Agriculture, Natural Resources and Livestock
vii. PS responsible of Water, Construction, Energy and Land
viii. PS responsible of State, Regional Administration and Special Departments
ix. PS responsible of Information, Tourism and Heritage
x. PS (PO) responsible for Constitutional Affairs and Good Governance, (CBOs, NGOs)
xi. PS responsible of Trade Industry and Investment
xii. PS responsible for Fisheries

Terms of Reference of the Steering Committee

- Assess and Review Emergency Status
- Approve and endorse recommendations, work plan and budget from the Secretariat Group
- Advice the DMC
- Mobilize resources to handle the Emergency
- Meet on a regular basis and depending upon the Emergency Situation
- Coordinate Mitigation and Response Measures on hazards.
- Promote and sustain institutional linkages
- Resolve issues that hinder smooth implementation of the program
- Oversee the implementation of the Emergency Preparedness and Response Plan

b) Secretariat

Technical Working Committee has formed a secretariat to carry out coordination of different sectors in the implementation of the Plan and to carry out day to day activities of the Committee. The Secretariat comprises of a group of experts from the Commission of Disaster Management and Ministries responsible for health, Agriculture, livestock, fisheries, and environment. It is headed by director of disaster management commission. Secretariat liaises with other countries within and

outside the region in streamlining prevention and control, detection, surveillance, coordination, advocacy and research of zoonotic diseases, antimicrobial resistance and biosecurity issues. Main task is to coordinate one health activities as stipulated in the One Health Strategic Plan, prepare expatriate suggestions to the steering committee. The secretariat can be subdivided into five pillars (Operational, Coordination, Research, Case Management, and Surveillance). Secretariat comprises the following members: -

1. Director, Zanzibar Disaster Management Commission - Chairperson
2. Director, Department of Livestock Development
3. Director of Environment
4. Director, planning and finance
5. Director of Curative Services
6. Director of Preventive Services and Health Education - Secretary
7. Director of Forestry and Commercial Crops
8. Director of Agriculture
9. Director of Trade
10. Director of Tourism
11. Senior Veterinary Epidemiologist
12. Manager of Zanzibar Airport
13. Director General Zanzibar Port Cooperation
14. Senior Medical Epidemiologist
15. Senior Lawyer from Attorney General Office
16. Director of Planning Regional Administration
17. Police Chief Operational
18. Coordinator of Special Department
19. Chairman of the Poultry Association
20. President ZNCCIA
21. Senior Wildlife Officer
22. Executive Directors of Zanzibar Food, Drugs and cosmetics
23. Head of Diagnostic unit
24. Directors from Research Institutions
25. Focal Persons for Antimicrobial Resistance from responsible institutions
26. Head of Pathology laboratory at Mnazi Mmoja Hospital
27. Head of Health Management Information System
28. Senior Disaster Management Officer
29. Chief Pharmacist
30. Chief Chemist

Terms of Reference for the Secretariat Group

1. Assess and Review the country epidemiology on zoonotic diseases, AMR, and biosecurity status
2. Coordinate epidemics, antimicrobial resistance surveillance and biosecurity operations
3. Undertake Risk Analysis
4. Prepare Contingency Plan
5. Prepare Emergency Preparedness Plan
6. Take an active role in the event of the zoonotic diseases, antimicrobial resistance, biosecurity issues and any other public health event
7. Provides advise to Steering Committee
8. Organize and provide secretariat services to the Technical Group Committee meetings.
9. Be part and parcel of the management and coordination team of the program.
10. Link coordination with development partners.
11. Prepare monthly, quarterly and annual work plans and budgets
12. Prepare monthly, quarterly and annual reports

c) District One Health Management Committees

In collaboration with Technical Committee, this committee enforces the decisions made by the Steering Committee. This includes the following tasks: -

1. Assisting technical committee in all of its field activities including passive and active surveillance
2. Enforcement of quarantine measures including supervision of destruction and disposal of carcasses
3. Supervise decontamination of premises, vehicles etc
4. Identifying and trying culprits breaching imposed regulations regarding of One Health
5. Communicating with higher authorities responsible for One Health activities.

The District One Health Management Committee is derived from members of The District Disaster Management Committee. It comprises the following members: -

1. District Commissioner - Chairperson
2. District Administrative Officer – Secretary
3. Director of city councils/municipal
4. One member from Civil Society Organization
5. District Livestock Development Officer
6. District Agriculture Officer
7. District Medical Officer
8. District Health Environment Officer
9. District Health Surveillance Officer

10. District Environment Officer
11. District Forestry Officer
12. District Police Officer
13. District Security Officer
14. District Information Officer
15. Representative of the business community
16. Prominent people within the District

d) Rapid Response Team

Two Rapid Response Teams (RRTs) have been established in Zanzibar; one in Unguja and one in Pemba. Each team comprises the following 15 members: -

1. Veterinary Clinical Officer
2. Veterinary Epidemiology Officer
3. Medical Officer
4. Medical Epidemiology Officer
5. Veterinary Laboratory Technician
6. Research Scientists
7. Disaster Management Officer
8. Environment Health Officer
9. Environmental Officer
10. Food Safety Officer
11. AMR coordinator for human and animal's health
12. Police Officer
13. KMKM Officer
14. KZU Officer
15. JKU Officer
16. JWTZ Officer
17. Wildlife Officer
18. Communication Officer

The RRTs are available for a field mission within 24 hours to address the outbreak in question. The RRT operates under the directives of the Department Council/ City Municipal and under general guidance of the Director of Commission of Disaster Management.

Objectives of RRTs

The RRTs have the objectives listed below related to all zoonotic diseases: -

1. Disease investigation (collection of all epidemiological information that allows tracing of the incident)

2. Clinical examination of human, birds/animals and pathological examination of carcasses
3. Sampling of appropriate material for further diagnosis and antibiotic sensitivity test
4. Immediate reporting of the incident to the Department of Livestock Development and Department of preventive service and health education
5. Provision of technical assistance to the Districts to implement the required containment measures as described in the Preparedness Plan Standard Operating Procedures (SOPs)

5.3. Implementation of the Strategic Plan

The implementation of the ZOHSP will be the responsibility of the government with support from partners and other stakeholders. The Zanzibar One Health Steering Committee (ZOHSC) will be in charge for oversight and coordination of the implementation of the One Health strategic plan. The TWG will be responsible to carry out coordination of different sectors in the implementation of the Plan and to carry out day to day activities of the committee.

5.4. Monitoring and Evaluation

Monitoring and evaluation is an important aspect during implementation of strategic plan. It provides the mechanisms for monitoring, reviewing, and evaluating progress towards the realization of the target and objectives. The implementation of the plan will be evaluated against the performance indicators. It is imperative to elaborate a comprehensive and detailed annual action plan from which a monitoring framework will be established.

The main sources of data for monitoring, reviewing and evaluation of the strategic plan will be generated from progress reports. Evaluation of the plan will serve two main purposes; first, to enquire into the feasibility of the plan, and second, to assess the overall impact. Indeed, evaluation of this strategic plan will be useful in several ways, including avoiding the possibility of wasting resources by aiding the selection of the most effective options, helping steering committee to continue with the plan that is likely to produce the intended results and detecting as well as correct some of the factors that may reduce the positive impact of One Health implementation.

5.4.1. Monitoring Plan

To ensure the implementation of the strategic plan is transparent, timely, and effective, the ZOHTC, lead the One Health TWG, will oversee monitoring of progress toward objectives. The TWG will define and undertake those activities needed in support of ongoing evaluation, medium term and terminal review processes, and ensure that monitoring data is captured, analysed, and shared with key stakeholders.

Strategies:

- Develop an M&E plan capable of continuous observation, data collection and analysis, communication and reporting, data and information storage.

- Develop indicators and measurement for all input, output, process and outcomes of the plan's strategy and implementation
- Monitor the status and progress of one health implementation based on the Logical Framework, Results Framework and the M&E Plan.
- Liaise and agree with stakeholders in each OH strategic objectives.

Activities:

- Develop joint monitoring and evaluation framework
- Domesticate joint external evaluation to make it an internal annual evaluation process
- Develop indicators and measurement for all inputs, outputs, processes and outcomes of the plan's strategy and implementation
- Conduct refresher training to all participating sectors in the M&E system
- Collect data and information on the status and progress of OH implementation based on the Logical Framework, Results Framework and the M&E Plan.
- Provide regular technical updates to the OH TWG

Performance Monitoring and Evaluation will be overseen by the OHTWG as follows:

- Short term: Regular, routine monitoring, data collection, analysis and reporting will be conducted.
- Mid-term/long-term: Alongside regular, routine monitoring, the OH Platform will engage an external evaluator to conduct a mid-term and end line evaluation in years 2-3 and 5. The evaluator will be selected through a competitive solicitation.

5.4.2. M&E Requirements:

- Monitoring Indicators
- Inputs (financing, human resources, infrastructure)
- Process (policies, legal and institutional framework)

Monitoring and evaluation (M&E) will support One Health Strategic Plan for implementation-planned activities for reaching their objectives and to take immediately action where there is some weakness. (Appendix 9 demonstrate M&E Framework)

REFERENCES

Ali M., Chang B., Isabel S., and Morris Shaun K., (2015). Global epidemiology of Human Rabies: Systematic Review and Meta-Analysis, *Open Forum Infectious Diseases*, 29(1), 1631.https://doi.org/10.1093/ofid/ofv133.1184.

Ali M.A., James O.C., Mohamed A.A., et al. (2020). Etiologic Agents of Fever of Unknown Origin Among Patients Attending Mnazi Mmoja Hospital, Zanzibar. Journal of Community Health. 2020 Oct;45(5):1073-1080. DOI: 10.1007/s10900-020-00832-w.

Bidaisee S., and Macpherson, C.N. L., (2014). Zoonoses and One Health: A Review of the Literature, Journal of Parasitology Research, vol. 2014, Article ID 874345, 8 pages, 2014. https://doi.org/10.1155/2014/874345.

Carrara P., Parola P., Brouqui P., Gautret P., (2013). Imported Human Rabies Cases Worldwide, 1990–2012. PLoS Negl Trop Dis 7(5): e2209. https://doi.org/10.1371/journal.pntd.0002209.

Chlebicz, A. and żliżewska, K., (2018). Campylobacteriosis, Salmonellosis, Yersiniosis, and Listeriosis as Zoonotic Foodborne Diseases: A Review. *Int. J. Environ. Res. Public Health*, *15*, 863.

Cupertino M.C., Resende M.B., Mayer N.A., Carvalho L.M., Siqueira-Batista R., (2020). Emerging and re-emerging human infectious diseases: A systematic review of the role of wild animals with a focus on public health impact. Asian Pac J Trop Med;13:99-106.

Devleesschauwer B., Aryal A., Sharma B.K., Ale A., Declercq A., Depraz S., et al., (2016). Epidemiology, Impact and Control of Rabies in Nepal: A Systematic Review. PLoS Negl Trop Dis 10(2): e0004461. https://doi.org/10.1371/journal.pntd.0004461.

Gallego, V., Nishiura, H., Sah, R., & Rodriguez-Morales, A. J., (2020). The COVID-19 outbreak and implications for the Tokyo 2020 Summer Olympic Games. *Travel medicine and infectious disease*, *34*, 101604. https://doi.org/10.1016/j.tmaid.2020.101604.

Hotez P.J., and Kamath A., (2009). Neglected Tropical Diseases in Sub-Saharan Africa: Review of Their Prevalence, Distribution, and Disease Burden. PLoS Negl Trop Dis 3(8): e412. https://doi.org/10.1371/journal.pntd.0000412.

Levin, S., (2012). Zoonoses. In Goldman's Cecil Medicine, 24th ed.; Goldman, L., Schafer, A.I., Eds.; W.B. Sounders: Philadelphia, PA, USA, Chapter 336; pp. 1964–1967.

Singh B., Khatkar M., Aulakh R.S., Gill J.P.S. and Dhand N., (2018). Estimation of the health and economic burden of human brucellosis in India. Preventive Veterinary Medicine.;154. pmid:29685439.

Walsh, M., (2009). Eating bats on Pemba Island: a local innovation or cultural borrowing? East African Notes and Records, Tuesday, 31 March 2009.

Leroy E.M., Kumulungui B., Pourrut X., Rouquet P., Hassanin A., Yaba P., Delicat A., Paweska J.T., Gonzalez J.P., Swanepoel R., (2005). Fruit bats as reservoirs of Ebola virus. Nature. 438:575–576.

Towner J.S., Pourrut X., Albarino C.G., Nkogue C.N., Bird B.H., Grard G., Ksiazek T.G., Gonzalez J.P., Nichol S.T., Leroy E.M., (2007). Marburg virus infection detected in a common African bat. PLoS ONE.;2:e764.

Towner J.S., Rollin P.E., Bausch D.G., Sanchez A., Crary S.M., Vincent M., Lee W.F., Spiropoulou C.F., Ksiazek T.G., Lukwiya M., et al., (2004). Rapid diagnosis of Ebola hemorrhagic fever by reverse transcription-PCR in an outbreak setting and assessment of patient viral load as a predictor of outcome. J Virol.78:4330–4341.

Prabhu M., Nicholson W.L., Roche A.J., et al., (2011). Q fever, spotted fever group, and typhus group rickettsioses among hospitalized febrile patients in northern Tanzania. Clinical Infectious Diseases; 53:e8.

Zhang H.L., Mnzava K.W., Mitchell S.T., Melubo M.L., Kibona T.J., Cleaveland S., et al., (2016). Mixed Methods Survey of Zoonotic Disease Awareness and Practice among Animal and Human Healthcare Providers in Moshi, Tanzania. PLoS Negl Trop Dis 10(3): e0004476. https://doi.org/10.1371/journal.pntd.0004476.

Ziwa, M.H., Matee, M.I., Kilonzo, B.S. & Hang'ombe, B.M., (2013). Evidence of *Yersinia pestis* DNA in rodents in plague outbreak foci in Mbulu and Karatu Districts, northern Tanzania. Tanzania Journal of Health Research.

Mwakapeje, E.R., Høgset, S., Fyumagwa, R. et al., (2016). Anthrax outbreaks in the humans - livestock and wildlife interface areas of Northern Tanzania: a retrospective record review 2006–2016. BMC Public

Health 18, 106, https://doi.org/10.1186/s12889-017-5007-z.

Sindato C., Karimuribo E.D., Pfeiffer D.U., Mboera L.E.G., Kivaria F., Dautu G., et al., (2014). Spatial and Temporal Pattern of Rift Valley Fever Outbreaks in Tanzania; 1930 to 2007. PLoS ONE 9(2): e88897. https://doi.org/10.1371/journal.pone.0088897.

Mgode, G.F., Mbugi, H.A., Mhamphi, G.G., Ndanga, D. & Nkwama, E.L. (2014). Seroprevalence of Leptospira infection in bats roosting in human settlements in Morogoro municipality in Tanzania. Tanzania Journal of Health Research. 16(1).

Rahman, M.T., Sobur, M.A., Islam, M.S., Ievy, S.; Hossain, M.J., El Zowalaty, M.E., Rahman, A.T. and Ashour, H.M. (2020). Zoonotic Diseases: Etiology, Impact, and Control. *Microorganisms*. *8*, 1405.

Calistri, P., Iannetti, S., Danzetta, M. L., Narcisi, V., Cito, F., Sabatino, D. D., Bruno, R., Sauro, F., Atzeni, M., Carvelli, A., & Giovannini, A. (2013). The Components of 'One World – One Health' Approach. *Transboundary and Emerging Diseases*, *60*(s2), 4–13. https://doi.org/10.1111/tbed.12145.

Country profile. (n.d.). Retrieved August 23, 2020, from http://www.sacmeq.org/?q=sacmeq-members/tanzania-zanzibar/country-profile.

da Costa, P. M., Loureiro, L., & Matos, A. J. F. (2013). Transfer of Multidrug-Resistant Bacteria between Intermingled Ecological Niches: The Interface between Humans, Animals and the Environment. *International Journal of Environmental Research and Public Health*, *10*(1), 278–294. https://doi.org/10.3390/ijerph10010278.

Dromigny, J. A., Nabeth, P., Juergens-Behr, A., & Perrier-Gros-Claude, J. D. (2005). Risk factors for antibiotic-resistant Escherichia coli isolated from community-acquired urinary tract infections in Dakar, Senegal. *Journal of Antimicrobial Chemotherapy*, *56*(1), 236–239. https://doi.org/10.1093/jac/dki158.

Dudley, J. P. (2004). Global Zoonotic Disease Surveillance: An Emerging Public Health and Biosecurity Imperative. *BioScience*, *54*(11), 982–983. https://doi.org/10.1641/0006-3568(2004)054[0982:GZDSAE]2.0.CO;2.

Economou, V., & Gousia, P. (2015). Agriculture and food animals as a source of antimicrobial-resistant bacteria. *Infection and Drug Resistance*, *8*, 49–61. https://doi.org/10.2147/IDR.S55778.

Lu, L., Liu, Q., & Jiang, S., (2012). Biosecurity and biosafety in research on emerging pathogens. *Emerging Microbes & Infections*, *1*(11), e44. https://doi.org/10.1038/emi.2012.39.

Mackenzie, J. S., & Jeggo, M., (2019). The One Health Approach—Why Is It So Important? *Tropical Medicine and Infectious Disease*, *4*(2), 88. https://doi.org/10.3390/tropicalmed4020088.

McNeely, J. A., Mooney, H., Neville, L. E., Schei, P., & Waage, J. K. (2001). A glogal strategy on invasive alien species. *A Global Strategy on Invasive Alien Species*.

Meyerson L.A., & Reaser J.K., (2002). Biosecurity: Moving toward a comprehensive approach: A comprehensive approach to biosecurity is necessary to minimize the risk of harm caused non-native organisms to agriculture, the economy, the environment and human health, BioScience, vol 52, issue 7, pg 593-600. Https:org//doi.org/10.1641/0006-3568.

Morgan, D. J., Okeke, I. N., Laxminarayan, R., Perencevich, E. N., & Weisenberg, S., (2011). Non-prescription antimicrobial use worldwide: A systematic review. *The Lancet Infectious Diseases*, *11*(9), 692–701. https://doi.org/10.1016/S1473-3099(11)70054-8.

Mueller, S., (2019). Are Market GM Plants an Unrecognized Platform for Bioterrorism and Biocrime? *Frontiers in Bioengineering and Biotechnology*, *7*. https://doi.org/10.3389/fbioe.2019.00121.

National Bureau of Statistics—Zanzibar Livestock Report—2007/08 Agriculture Sample Census. (n.d.). Retrieved August 16, 2020, from https://www.nbs.go.tz/index.php/en/census-surveys/agriculture-statistics/48-zanzibar-livestock-report-2007-08-agriculture-sample-census.

Patrone, D., Resnik, D., & Chin, L., (2012). Biosecurity and the Review and Publication of Dual-Use Research of Concern. *Biosecurity and Bioterrorism : Biodefense Strategy, Practice, and Science*, *10*(3), 290–298. https://doi.org/10.1089/bsp.2012.0011.

Shoka, I. H., (2015). *Contribution of agriculture to the economic Growth of Zanzibar* [Thesis, Mzumbe University]. http://scholar.mzumbe.ac.tz/handle/11192/1112.

van Aken, J., & Hammond, E., (2003). Genetic engineering and biological weapons. *EMBO Reports*, *4*(Suppl 1), S57–S60. https://doi.org/10.1038/sj.embor.embor860.

Zanzibar Office of Chief Government Statistician [WorldCat Identities]. (n.d.). Retrieved August 23, 2020, from http://worldcat.org/identities/lccn-n2005202877.

Appendix 1: Terms of Reference of Rapid Response Team

A. Veterinary/Human Health Clinicians

These team members will support the achievement of the following mission objectives: -

1. Assessment of the necessary containment measures adapted to the disease ianncidence.
2. Clinical examination of live birds/animals and pathological appreciation of carcasses
3. Sampling of materials for further diagnostics and antibiotics sensitivity test if appropriate
4. Follow the biological samples for further laboratory diagnostics and antibiotics sensitivity results and submit the report to RRT leader.
5. Provision of technical assistance to the Districts to implement the required containment measures as described in the Preparedness Plan SOPs.
6. Provision of technical assistance to logistical aspects.
7. Assess the incident with regard to the necessary measures to be taken according to the national strategy to prevent and control epidemic of zoonotic.
8. Assess the districts capability and resources of the districts to ensure an effective control of the incident.
9. Provide technical assistance to the district livestock and health officers to implement the containment measures according the SOPs.
10. Arrange and attend briefing meetings with local partners in the district involved in zoonotic.
11. Identify areas of cooperation with ongoing one health related issues control operations in the region / district.
12. Ensure that sufficient resources (within or from an outside source) are available to respond to the outbreak and control its spread.
13. Ensure availability of transportation for the RRT during missions
14. Ensure the necessary items such as laptop, phones, GPS etc. will be in place
15. Ensure daily subsistence allowances and other expenses for RRT are available during missions.
16. Lead meetings with disease investigation team members. During the meeting review the epidemiology of the disease, measures for completing investigation forms, specimen collection procedures, priority of investigations, and Zanzibar regulations pertinent to the disease and situation with all investigation team members.
17. Facilitate communication with other involved institutions/organizations.
18. Perform other related duties as requested by the Technical Group Committee/ Steering Committee.

B. Veterinary/Medical Epidemiologists members will support the achievement of the following mission objectives: -

1. Collection, analysis and interpretation of all relevant epidemiological information and linked to the incident.
2. Investigation of potential source of infection (trace back) and investigation of potential spread of infection (trace forward)
3. Provision of technical assistance to the district livestock development officer to implement the required surveillance measures as described in the SOPs.

The scope of work for these Team members will be to: -

1. Collect all relevant epidemiological information on the incident according the investigation form (including SOPs) with regard to the national strategy to prevent and control zoonotic diseases, AMR and biosecurity issues.
2. Assess the district capability and resources to ensure an effective prevention to further spread of the incident.
3. Determine appropriate sampling frame based on epidemiological information.
4. Provide technical assistance to the district livestock and health officers to implement the surveillance measures according to the SOPs.
5. Arrange and attend meetings with stakeholders in the district involved in zoonotic diseases, AMR and biosecurity- related operations.
6. Identify areas of cooperation with ongoing zoonotic diseases, AMR and biosecurity related surveillance operations in the region/ district.
7. Provide education and awareness to stakeholders about the disease under investigation
8. Formulate a case definition; classify cases into suspect, probable, confirmed or ruled-out
9. Maintain a current line listing of cases, an epidemic curve and number of suspect cases pending investigation.
10. Maintain a timeline of events in consultation with the team leader. Include dates and names on initial report, initial and subsequent contact with different agencies, meeting/conference calls, and decisions pertaining to the outbreak
11. Submit the completed investigation forms and ensure a final written report of the outbreak is submitted within 30 days (to DLD/DPH/ DDC) from the end of the outbreak.
12. Serve as zoonotic diseases epidemiologist, AMR and biosecurity expert for DLD/ DPH/ DDC
13. Perform other related duties as requested by Technical Group Committee/ Steering Committee.

C. Police Officer

1. Provide legal protection to the team for the smooth carrying out of its duties.
2. Accompanying every mission to the field to ensure compliance on part of the society.
3. Prosecute all offenders in relation to this incidence.

D. Disaster Management Officer

1. Guide the team to arrange and attend meetings with donor community and other stakeholders to solicit funds for the execution of zoonotic diseases, AMR and biosecurity - related operations.
2. Guide the team to arrange and attend meetings with the districts involved in zoonotic diseases, AMR and biosecurity- related operations.
3. Provide education and awareness to stakeholders about the disease under investigation

E. Zoo-sanitary Officers

1. Make sure that people abide with importation and exportation controls imposed to facilitate the team to expedite disaster control.

F. Veterinary and Health Laboratory Technicians

1. Determine appropriate sampling frame based on epidemiological information.
2. Sampling for laboratory diagnostics and antimicrobial sensitivity test.

G. Environmental Officer

1. To safe guard the environment
2. To make sure that disposal is environmentally acceptable.

Appendix 2: Role of stakeholders in Pre – Pandemic Plan

a) Commission of Disaster Management - SVPO

Disaster Management Commission (DMC) is an overall coordinating body for disaster activities in Zanzibar. It liaises with local and international organizations concerning all issues of disasters including one health.

Activities to be carried out: -

i. Conduct a one-day sensitization meeting to local and international partners for mobilization of pre-position supplies to be used in case of pandemic.

ii. Facilitate Steering committee, and Technical Group Committee meetings.

iii. Procure communication equipment for DMC so as to be able to perform their roles effectively.

iv. Conduct public awareness programs/campaign through media, seminar, leaflets, posters, meetings, drama etc.

b) Ministry of State President Office (PO) Regional Administration, and Special Departments

1. **Local Government Authorities (LGAs)** are first responders at district and Shehia level and play specific roles in mitigation, preparedness and response to an outbreak. The regions, districts and shehia disaster management committees shall be responsible for monitoring the hazards, risks, threats and the conditions of vulnerable population.

   Activities to be carried out: -

   i. Conduct trainings, needs assessments and public awareness campaign on one health to the public.

   ii. Formulate and implement by-laws on the control of zoonotic diseases, antimicrobial resistance and biosecurity issues.

   iii. Mainstream one health to their staff

2. **Special Departments** have special advantages during emergencies. They are mobile, organized, have many experts and are capable of operating with their own logistics in collaboration with other stakeholders.

   Activities to be carried out: -

   i. Facilitate the special departments to enforce by-laws to prevent zoonotic diseases and antimicrobial resistance.

   ii. Mainstream staff on one health.

c) Ministry of State (PO) Constitutional Affairs and Good Governance, (CBOs, NGOs)

The daily obligation of this Ministry is to ensure good governance practices are inculcated in all levels.

Roles: -

i. Improve public safety and security
ii. Ensure inclusiveness in governance and development process.
iii. Combat corruption and its manifestation and strengthen leadership ethics.
iv. Promote and facilitate enjoyment of human rights.

d) Non State Actors

1. Private Sector

Private Sector is endowed with experts, equipment, and funds to supplement Government efforts to prepare, mitigate, and respond to epidemics.

1. Activities to be carried out: -
2. To assist in awareness creation.
3. To link between authorities and stakeholders.
4. Actively participate in control measures
5. To solicit for compensation in case of mass slaughter
6. Participate in sensitization of stakeholders on the control measures
7. Play active role in the formulation of policy and laws on prevention and control.

2. Civil Society Organizations (CSOs)

CSOs have the ability to mobilize additional resources, which are useful in supplementing Government efforts during emergencies. They have advantages of being effective at community level.

Activities to be carried out:

i. Conduct awareness and encourage their members to participate in their relevant mitigation activities especially in early stages of preparedness aimed at reducing vulnerability to community.
ii. Facilitate CBOs, NGOs and FBOs to promote public awareness.
iii. Mobilize resource from various sources.

e) Ministry of Home Affairs

1) Police Force

They play important roles in preparedness, mitigation and response on emergences. They provide security to the public and their properties.

Activities to be carried out: -

i. Mainstream their staff on One Health (zoonotic outbreak and antimicrobial resistance).
ii. Facilitate the police force on enforcement of laws and by-laws to prevent outbreaks of zoonotic diseases, antimicrobial resistance and biosecurity issues

2) Immigration Department

Activities to be carried out: -

i. Review migratory laws and regulation on zoonotic and other emerging diseases.
ii. Mainstream its officers on One Health.

f) Ministry of Foreign Affairs and International Cooperation

The daily obligation of this Ministry is to ensure diplomatic relations.

Activities to be carried out: -

i. Mainstream on One Health to the staff.
ii. Mobilize resource from Embassies and International Organizations.
iii. Liaise with Embassies for information sharing on epidemics/ pandemics.

g) Ministry of Finance and Economic Affairs

This Ministry is responsible for collection of revenues and preparation of national budget for providing recurrent and development funds to various Ministries within the Zanzibar Government.

Activities to be carried out: -

i. Mainstream on One Health to staff.
ii. Mobilize local and foreign resources to support response operations.
iii. Review national plans to accommodate new priorities in the prevention and control of outbreaks.
iv. Establish One Health fund to be used for preparedness, prevention, mitigation, and compensation for those who suffer disability, lost their lives and livestock during epidemics/ pandemics.

h) Ministry of Transportation and Communication

The role of this Ministry is to manage and implement policy, act and regulations and all matters pertaining to communication and transportation. The ministry is also responsible for the infrastructures in the country.

Activities to be carried out: -

i. Mainstream staff on One Health
ii. Enforce the implementation of ports regulations

i) Ministry of Education and Vocational Training

Ministry of Education and Vocational Training is responsible for primary, secondary and higher institutions of learning.

Activities to be carried out: -

i. Educate students of different level of education on One Health.
ii. Mainstream staff on One Health.

iii. Educate teachers and curriculum developers on One Health.
iv. Prepare syllabus and curriculum to teachers on One Health.
v. Develop curriculum and teaching materials on One Health.

j) Ministry of Information, Tourism and Heritage

This Ministry is responsible for informing the public of events happening locally and internationally.

Activities to be carried out:-

i. Conduct public awareness campaigns through mass media
ii. Mainstream staff on One Health.
iii. Mainstream hotel staff on One Health.
iv. Train media staff on how to report emergence information.
v. Develop TV, radio programs, newspaper articles and journals to raise public awareness.

k) Ministry of Labour, Empowerment, Youth, Women and Children Development

The Ministry deals with the country's labour force and development of women, youth and children.

Activity to be carried out:-

i. Mainstream on One Health to staff, employees and employers organizations, and youth and women groups.
ii. Mobilize resources from various sources to support their groups.
iii. Prepare budget plan for compensation for those who suffer disability, lost their lives and livestock during epidemics/ pandemics.

l) Ministry of Water, Construction, Energy and Lands

Activities to be carried out:-

i. Mainstream staff on One Health.
ii. Ensure continuous supply of clean and safe water.
iii. Ensure availability of electricity.
iv. Allocate land for disposal of carcasses and cadavers.

m) Ministry of Defense and National Services

Armed Forces (JWTZ) have been and still are potential key stakeholders in disaster management in Tanzania as a whole, both in disaster preparedness and in response. They have trained manpower, have requisite equipment and are well organized.

Activity to be carried out:-

i. Mainstream on One Health epidemics/ pandemic issues.

n) Regional and International Development Partners

Regional and International Partners are very important in One Health disaster management. They provide humanitarian assistance, human and financial resources, equipment and supplies and technical assistances to affected communities.

Activities to be carried out:-

i. Mobilize resources.

ii. Build technical capacity to the stakeholders.

iii. Share information with the country and other stakeholders.

Appendix 3: Roles of other Stakeholders on Pandemic

a) Disaster Management Commission (DMC) - SVPO

Activities to be carried out:-

i. Monitor and supervise mitigation of epidemics/ pandemic response operations.

ii. Provide camps and other basic needs to affected people.

iii. Supervise distribution of supplies and services.

iv. Collect information from relevant sources and transmit it to the Communication Command Centre (Operating Centre).

v. Mobilize resources from various sources to assist in responding to One Health (zoonotic disease outbreaks, antimicrobial resistance and biosecurity issues).

vi. Collaborate with international organizations on information sharing and sharing of experience and expertise.

b) Ministry Of State (PO) Regional Administration and Special Department

1) Local Governments

Activities to be carried out:-

i. Deploy soldiers to enforce law and order and to ensure no further spreading of disease outbreak.

ii. Facilitate districts management committees to distribute and provide basic needs to affected communities in collaboration with other relevant institutions and stakeholders.

iii. Deploy soldiers to enforce quarantine in collaboration with relevant institutions.

2) Special Departments

Activities to be carried out:-

1. Deploy soldiers to enforce by-laws to ensure no further spreading of disease outbreak.
2. Deploy soldiers to combat smuggling.
3. Deploy soldiers to enforce quarantine in collaboration with other relevant institutions.
4. Compliment civil efforts operating during emergency situations and participate in disposal of carcasses and waste.
5. Provide technical support.
6. Distribute relief supplies in collaboration with other relevant stakeholders.

c) Ministry of State (PO) Constitutional Affairs and Good Governance

1) Private companies

Activities to be carried out:-

i. Mobilize resources from various sources to assist government efforts in responding to epidemic/ pandemic situation.

ii. Compliment commercialized services, such as health, food and water services so as to respond to the epidemic/ pandemic situation.

2) Civil Society Organizations

Activities to be carried out:-

i. Conduct awareness campaigns

ii. Mobilize resources from various sources where appropriate to provide to the needy

iii. Provide assistance to disaster alleviation

d) Ministry Of Home Affairs

3) Police Force

Activities to be carried out:-

i. Maintain law and order and support enforcement of quarantine.

ii. Ensure order at disposal of carcasses

iii. Maintain law and order in distribution of relief

4) Immigration Department

Activities to be carried out:-

i. Control immigration of people.

e) Ministry of Foreign Affairs and International Cooperation

Activities to be carried out:-

Ensures safety and wellbeing of foreigners infected with disease outbreak, and organizes funeral services in case of death or transfer to their domiciles.

i. Mobilize resources from embassies and international organizations to assist the control of epidemics/ pandemic.

ii. Share information with embassies on status of epidemics/ pandemic in the country.

f) Ministry of Finance and Economic Affairs

Activities to be carried out:-

i. Facilitate clearing of relief goods and supplies.

ii. Disburse funds to facilitate control of infection and compensation to those who lost their livestock through stamping out.

g) Ministry of Transportation and Communication

Activities to be carried out:-

i. Strengthen inspection of goods at ports of entry.

ii. Provide transport logistics to support control operations and surveillance during epidemic/ pandemic.

h) Ministry of Education and Vocational Training

Activities to be carried out:-

i. Conduct quick survey around the affected areas in collaboration with MANLF and MoH to understand how far their staff and students are affected.

ii. Allocate teachers from affected areas to work in other free areas where appropriate.

iii. Provide school infrastructure for extended hospital requirements.

i) Ministry of Information Tourism and Heritage

Activities to be carried out:-

i. Collect updated information from communication centre and disseminate to the public.

ii. Ensure media get correct information to avoid misinformation and panic to the public.

j) Ministry of Labour, Empowerment, Youth, Women and Children Development

Activities to be carried out: -

i. Conduct awareness campaigns to livestock keepers' groups.

k) Ministry of Trade Industry and Investment

Activities to be carried out:-

i. Provide and receive up-to-date business information to transmit to the business communities.

ii. Collaborate with private sectors to ensure business continuity.

l) Ministry of Water, Construction, Energy and Lands

i. Maintain continuous supply of clean and safe water.

ii. Ensure availability of electricity.

iii. Allocate land for relief camping and for disposal of carcasses and dead bodies.

iv. Provide temporary water and drainage systems in relief camps.

m) Ministry of Defense and National Services

i. Provide assistance to support response exercise (technical, logistical and manpower).

ii. Maintain security and order.

n) International Development Partners

i. Networking with each other and link with intra-Ministerial network.

ii. Mobilize resource (technical, equipment, and funds).

iii. Strengthen coordination and cooperation with government.

Appendix 4: Research and Development TWG

The research and development TWG will be comprised of members from the following institutions:

INSTITUIONS	MEMBERS
Universities	3 members from SUZA and ZUSU
Ministerial research institutes	5 members from ZAHRI, ZALIRI, ZARI, IFRZ, ZARI
SVPO-DDM	Secretariat
SVPO	1 members
ZEMA	1 members
Ministry of défense	1 members
Ministry of finance and planning	1 members
Development Partners (DPs)	5 Members from EAC, UN-agencies, bilateral organizations (embassies)
Planning and policy officers	4 members from MANLF, MOH, ZEMA, SVPO

The roles and responsibilities of the Research and Development TWG are to:

- Operationalize OH strategy under respective thematic area.
- Prepare annual plan as per strategy.
- Prepare Quarterly meeting.
- Report to steering committee on the progress to the implementation of OH strategy.
- Proposal writing.
- Each representative will provide updates on ongoing activities and provide technical advice to the One Health Steering Committee (One more focal person selected as deputy from respective units to represent in the absence of focal person).

Funding: Members will be paid by their organizations and institutions. The secretariat will be responsible to facilitate quarterly meetings.

Appendix 5: Surveillance TWG

The Surveillance TWG will be comprised of members from the following institutions:

1. Veterinary Epidemiologist (MANLF)
2. Human Epidemiologist (MoH)
3. Director of Research (ZAHRI)
4. Director of Research (ZALIRI)
5. Chief Veterinary Officer (MANLF)
6. Director of Preventive Services (MoH)
7. 2 Representatives (Universities)
8. Director (ZEMA)
9. Representative from Mnazi Mmoja Hospital
10. Development partners

The roles and responsibilities of the Surveillance TWG are to:

1. Advise on priority zoonotic diseases and combating the antimicrobial resistance and biosecurity issues.
2. Prepare guidelines for zoonotic disease, antimicrobial resistance surveillance and biosecurity issues.
3. Proposal preparations for different surveillance programs.
4. Provide technical surveillance guidance to SC and OHU.
5. To monitor and evaluate surveillance program.
6. To review disease and AMR surveillance reports.
7. Prepare agenda for SC.
8. Prepare early warning system.
9. Meeting schedule: Quarterly/when needed.

Funding: Members will be paid by their organizations and institutions. The secretariat will be responsible to facilitate quarterly meetings.

Appendix 6: Preparedness and Response TWG

The Preparedness and Response TWG will be comprised of members from the following institutions:

1. Representative (SVPO-DDM)
2. Epidemiology officer (MoH)
3. Veterinary epidemiology officer (MANLF)
4. Director of veterinary services (MANLF)
5. Representative (ZAHRI)
6. Representative (ZALIRI)
7. Principal Veterinary Officer (VSO)
8. Director of preventive services (MoH)
9. 2 Representatives (Universities)
10. Representative (ZEMA)
11. Representative (Relevant Sectors e.g. National Security, Water, Transport, Immigration, etc)
12. Development partners
13. Officer – Health education and promotion unity (MoH).

The roles and responsibilities of the preparedness and response TWG are to:

1. Prepare guidelines/SOPs for preparedness and response.
2. Proposal preparations for preparedness and response and resource mobilization.
3. Provide technical guidance to SC and OHU.
4. Advice and develop on better communication strategies.
5. To monitor, evaluate and facilitate preparedness and response plans.
6. Prepare agenda for SC.

Funding: Members will be paid by their organisations and institutions. The secretariat will be responsible to facilitate quarterly meetings.

Appendix 7: One Health Coordinating Unit

The One Health Coordinating Unit will have its office in the SVPO- Disaster Management Department.

The Unit will comprise of 6 individuals. They will include:

- OH National Coordinator – With knowledge in OH issues.
- Senior Medical Officer – With knowledge on OH issues experience in disease surveillance and outbreak investigations.
- Senior Veterinarian - With knowledge on OH issues, experience in disease surveillance and outbreak investigations.
- 2 Supporting staff (Administrative Secretariat and Driver).
- Data manager – with knowledge in IT and experience in database management particularly in health.

The roles and responsibilities of the One Health Coordinating Body are to:

- Mobilize resources.
- Facilitate inter-sectoral coordination of zoonoses surveillance.
- Facilitate inter-sectoral coordination of outbreak investigation of zoonoses.
- Request experts as needed.
- Coordinate M&E.
- Provide Secretariat to the National OH Steering Committee and TWGs.
- Facilitate inter-ministerial social mobilization/psychosocial.

Funding: The respective Ministries will cover salaries of National OH Coordinator, Medical Officer and Veterinarian. Salaries of Administrative Secretary and Database Manager (IT) will initially be covered by partner and later passed on to the Government. The cost of the unit will initially be covered by partners and later passed on to the Government.

Appendix 8: Provisional list of reported zoonotic disease in Tanzania

Category	Disease	Etiological agent
Viral	Rabies	Lyssavirus, Rhabdovirus
	Rift valley fever	RVF Virus, Phlebovirus, Bunyaviridae
	HPAI	H1N1, H5N7, H5N1
Bacterial	Plague	*Yersnia pestis*
	Salmonellosis	*Salmonella* spp
	Bovine tuberculosis	*Mycobacterium bovis*
	Anthrax	*Bacillus anthracis*
	Brucellosis	*Brucella* species
	Campylobacteriosis	*Thermophilic campylobacters*
	Verotoxigenic *Escherichia coli*	*Escherichia coli* 0:157
	Shigellosis	*Shigella* spp
	Tick borne relapsing fever	*Borrelia* spp
	Q-fever	*Coxiella burnetii*
	Spotted fever	Rickettsia –typhus group
	Leptospirosis	*Leptospira* spp
Parasitic	Cryptosporidiosis	*Cryptosporidia* spp
	Sleeping sickness	*Trypanosome* spp
	Porcine cysticercosis/Taeniasis	*Taenia solium*
	Toxoplasmosis	*Toxoplasma gondii*
	Bovine cysticercosis	*Taenia bovis*
	Hydatidosis	*Echnococcus granulosus*
	Trichnellosis	*Trichnella spiralis*
	Trematodosis (Faciliosis)	*Fasciolla* spp
	Giardiasis	*Giardia lamblia*
	Visceral and Ocular larva migrans	*Toxocara canis*
	Schistosomiasis	*Schstosoma* spp
Fungal	Dermatophytoses (Ring worm)	Epidemophyton, Microsporum, and *Trichophyton* spp.
	Sporotrichosis	*Sporothrix schenckii*

Appendix 9: Monitoring and Evaluation of Implementation Plan

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
0.1. To develop training package on one health (OH) concept	Availability of OH training package	Output	A package that will be used as guide for training One Health	Availability of OH training package	Annual	MoEVT, MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022	MoEVT
0.2. 1.2 To conduct training of trainers (ToT) from key ministries responsible for human and animal health, plants and environment	Number of trainers trained	Output	Number of (ToT) from key ministries responsible for human and animal health, plants and environment trained	Number of training of trainers (ToT) from key ministries	Annual	MoEVT, MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022	MoEVT, MoHSWEGS and MAINL&Blue Economic
0.3. 1.3 To conduct training on basic concepts in OH to in-services working in animal and human health, plants and environment and other actors	Number of training participants/ organization	Output	Number of stakeholders (working in animal and human health, plants and environment and other actors) trained on basic in One Health	Availability of trained staff who are working in animal and human health, plants and environment and other actors .	Annual	MoEVT, MoHSWEGS, MAINL&Blue Economic and Environment Department - Annual report	No	2022	

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
0.4. 1.4 To increase awareness of OH concept to learning institutions and public at large	Number of institutions have awareness on One Health concept	Output	Number of institutions have awareness on One Health concept and establish curriculum	Number of higher learning institutions that have awareness on One Health concept and utilized	Annual	MoEVT/ Universities Annual report	No	2022	
0.5. 1.1 To conduct desk review to assess existing OH training curriculum concepts/ approaches	Number of desk review meeting conducted to assess existing OH training curriculum concepts/ approaches	Output	Number of desk review meeting conducted to assess existing OH training curriculum concepts/approaches	Stakeholders involved in desk review meeting to assess existing OH training curriculum	Annual	MoEVT, MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022	
0.6. 1.2 To review curriculum to incorporate OH	Number of meeting conducted	Output	Reviewed curriculum which incorporate with OH concepts	The contents which incorporate in OH curriculum	Annual	MoEVT, MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022	MoEVT/ Universities
0.7. 1.3 To conduct OH stakeholder's meeting to validate reviewed curriculum	Number of meeting conducted	Output	Number of stakeholders meeting to validate OH reviewed curriculum	Key Stakeholders involved in the meeting to validate OH reviewed curriculum	Annual	MoEVT, MoHSWEGS and MAINL&Blue Economic, Annual meeting report	No	2022	MoEVT/ Universities

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
0.8. 1.4 Conduct peri-odic supportive supervision	Number of supervision conducted	Output	Number of supportive supervision done according to plan	Supervisors adhere with planned supervision	Quarterly	One Health Coordinating Body - Quarterly report	No	2022 - 2025	One Health Coordinating Body - Quarterly report
0.9. 1.1 To conduct lab assessment using standardized tool	Number of laboratories assessed by using standardized tools	Output	Laboratory assessment done by using standardized tools	Presence of Laboratory standard tools used for assessment of OH activities	Quarterly	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022 - 2025	MoEVT, MoHSWEGS, MAINL&Blue Economic and Department of Environment
1.2 To train laboratory personnel on detection of DPHE based on the gaps identified	Number trained lab technicians	Output	Laboratory personnel have skills according to demand	Presence of trained laboratory personnel in the organization	Annual	MoEVT, MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022 - 2025	MoEVT, MoHSWEGS and MAINL&Blue Economic
1.3 Procure equipment, reagents and supplies based on the finding	Number of equipment and reagents procured	Output	Availability of equipment, reagents and supplies accordingly	Presence of equipment, reagents and supplies according to the demand	Biannual	MoHSWEGS and MAINL&Blue Economic, biannual report	No	2022 - 2025	MoEVT/ Universities

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
1.4 To enhance laboratories to participate in quality assurance (QA) programs	Number of programs participated	Output	All stakeholders participate during conducting quality assurance programs	Presence of team which involved in laboratories quality assurance programs	Annual	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022 - 2025	One Health Coordinating Body
1.5 To enhance laboratories to perform AMR and AMR residues testing	Number of tests performed	Output	All laboratories perform quality services	Presence of laboratories which perform AMR test/ investigation	Quarterly	MoHSWEGS and MAINL&Blue Economic, Quarterly report	No	2022	MoHSWEGS and MAINL&Blue Economic
1.6 To develop appropriate standard operating procedures (SOPs) based on procedures identified	Number of SOP guideline developed	Output	Number of SOP guideline developed	Presence of SOPs Guidelines in the area which performs procedure	Once	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022	MoHSWEGS and MAINL&Blue Economic
1.1 To conduct advocacy meeting to policy makers at the national level and districts	Number of meeting conducted	Output	Advocacy meeting conducted to policy maker at all levels	Policy maker involved in OH concepts	Annual	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022	One Health Coordinating Body

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
	Number of key sectors incorporated OH concept into the existing policies	Output	Number of key sectors incorporated OH concept into the existing policies	Policy maker participate in OH concepts	Annual	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022	One Health Coordinating Body
1.1 To conduct awareness meeting to communities	Number of awareness meeting conducted	Output	Awareness meeting conducted according to plan	Awareness meeting conducted according to plan	Quarterly	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022 - 2025	One Health Coordinating Body
1.2 prepare information education materials (poster, leaflet and brochures)	Number of posters, leaflets, brochures developed and produced	Output	Presence of reparation of information IECs materials (poster, leaflet and brochures)	Availability of Information education materials in the community	Annual	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022 - 2025	MoHSWEGS and MAINL&Blue Economic
1.3 Empower communities to carry out OH related activities	Number of communities empowered to carry out OH related activities	Progress	Presence of communities to carry out OH related activities	Availability of communities which participate on OH activities	Quarterly	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022 - 2025	One Health Coordinating Body

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
1.1 Conduct advocate meeting to decision makers, International organization and stakeholders including non-governmental organizations (NGOs)	Number of meeting conducted	Progress	Number of International organization and other stakeholders accept to involve in OH activities	Number of stakeholders involve in OH activities	Annual	Commission of Disaster Management, Annual report	Partial	2022 - 2025	One Health Coordinating Body
1.2 Organize fund raising meetings	Number of meeting conducted	Output	Number of meeting conducted for fund raising	Number of meeting conducted for fund raising	Annual	Commission of Disaster Management, Annual report	No	2022 - 2025	One Health Coordinating Body
1.3 Identify and apply for new funding opportunities/ grants	Number of (new) financial partners	Progress	Number of (new) financial partners identified	Presence of new funding opportunities	Annual	Commission of Disaster Management, Annual report	No	2022 - 2025	One Health Coordinating Body
1.1 To conduct KAP study to assess knowledge, Attitude, acceptance and motivation on one health initiative among key actors	Number of KAP study conducted	Output	Number of KAP study conducted	Number of KAP study conducted	Annual	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022	The 2nd VPO, MoHSWEGS and MAINL&Blue Economic

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
1.2 Develop OH communication strategy	Presence of OH Communication strategy	Output	Presence of OH Communication strategy	Availability of OH Communication strategy	Once	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022	The Second Vice President's Office
1.3 Develop IEC/BCC on one health concept and distributed to the Key ministries, academic institution, livestock families and in Zanzibar community at large	Number and type of materials developed and distributed	Output	Number and type of materials developed and distributed	Number and type of materials developed and distributed	Annual	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022	MoHSWEGS and MAINL&Blue Economic
1.4 Initiation of a core communications advisory group or board (which consist members from all key sectors)	Presence of advisory functional committee	Output	Availability of core communications advisory group or board	Presence of core communications advisory group or board	Once	Commission of Disaster Management, Annual report	No	2022	Commission of Disaster Management
1.1 Establish call Centre for one health	Functional call Centre is in place	Progress	Functional call Centre is in place	Presence of functional call Centre is in place	Quarterly	Commission of Disaster Management, Annual report	No	2022 - 2025	Commission of Disaster Management

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
1.2 Develop and design audio and video clips including Animation	Number and frequency of radio sessions aired	Progress	Number and frequency of radio sessions aired	Number and frequency of radio sessions aired	Quarterly	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022 - 2025	MoHSWEGS and MAINL&Blue Economic
1.3 Live radio and Audio programs	Number and type of lived questions asked	Output	Number and type of lived questions asked	Number and type of radio and audio programs produced	Quarterly	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022 - 2025	Commission of Disaster Management
1.3 Conduct mobile van and Cinema shows at the community levels	Number of people reached	Output	Number of mobile van and Cinema shows conducted in the community levels	Number of mobile van and Cinema shows conducted in the community levels	Quarterly	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022 - 2025	Commission of Disaster Management
1.4 Develop messages by using Key influencers	Number of shehia visited	Output	Number of shehia received message from key influencers	Number of shehia received message from key influencers	Quarterly	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022 - 2025	MoHSWEGS and MAINL&Blue Economic
1.5 Develop messages by using Community Key actors	Number of key actors involved	Output	Number of shehia received message from key actors	Number of shehia received message from key actors	Quarterly	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022 - 2025	Commission of Disaster Management
1.6 Develop social media messages	Type of messages aired by community key actors	Output	Type of messages aired by community from key actors	Type of messages aired by community from key actors	Quarterly	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022 - 2025	Commission of Disaster Management

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
	Number and type of social media messages developed and circulated	Output	Number and type of social media messages developed and circulated	Number and type of social media messages developed and circulated	Quarterly	MoHSWEGS and MAINL&Blue Economic, Annual report	No	2022 - 2025	Commission of Disaster Management
a) Establish a secretariat for coordination of One Health	One Health coordination secretariat is established and working (functional)	Output	Availability of One Health coordination secretariat is established and working (functional)	Presence ne Health coordination secretariat is established and working (functional)	Annual	Technical Working Group Committee - Annual Report	N0	2022	Technical Working Group Committee
b) Develop terms of reference for the One Health secretariat	Detailed TOR for One Health secretariat that defines roles and responsibilities is available	Output	Availability of functioning TOR for One Health secretariat	Detailed TOR for One Health secretariat that defines roles and responsibilities is available	Annual	Technical Working Group Committee - Annual Report	No	2022	Technical Working Group Committee
c) Enlist and identify professionals and agencies that are the main stakeholders	Inventory of all stakeholders represented in One Health coordination is available	Output	Number of professionals and agencies that are the main stakeholders	Number of professionals and agencies that are the main stakeholders	Annual	Technical Working Group Committee - Annual Report	Partial	2022	Technical Working Group Committee

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
d) Develop concept notes and proposals to raise funds to manage the secretariat	Evidence of fund raised and proposal making is available	Output	Number of concept notes and proposal written for fund raising	Number of concept notes and proposal written for fund raising	Annual	Ministry of Finance and Economic Affairs - Annual report	No	2022	Commission of Disaster Management
e) To secure and equip the OH office	Evidence of fund raised, staff and working tools are available	Output	Number and types of equipment procured for OH office	Number and types of equipment procured for OH office	Once	Ministry of Finance and Economic Affairs - Annual report	No	2022 - 2025	Commission of Disaster Management
a) Identify the number and sectors brought together under each TWG	An inventory of names and number of ministries, sectors and partners working with TWGs is readily available at the secretariat	Output	Number of ministries, sectors and partners working with TWGs readily available at the secretariat	Number of ministries, sectors and partners working with TWGs readily available at the secretariat	Annual	Technical Working Group - Annual report	No	2022 - 2025	Technical Working Group
b) Define roles for the TWGs	Clearly defined functions and roles of each TWG is available	Output	Availability of roles for TWG	Each TWG doing their roles accordingly	Annual	Technical Working Group - Annual report	No	2022	Technical Working Group

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
c) Define and agree on frequency of meetings for each TWGs	Minutes of meetings and their scheduled dates are available	Output	Number of meetings conducted according to the schedule	Number of meetings conducted according to the schedule	Once	Technical Working Group - Annual report	No	2022 - 2025	Technical Working Group
d) To establish One Health National Forum	ToR establishing the forum and minutes of meetings held.	Progress	Availability of One health National Forum	One Health National Forum meets according the plan	Quarterly	Technical Working Group Committee - Annual Report	No	2022 - 2025	Technical Working Group
a) Identify leadership for each Technical Working Group	Membership and chair of each TWG is identified and communicated	Output	Number of TWG with their members and chairperson identified	Membership and Chairperson for each TWG identified and communicated	Once	Technical Working Group Committee - Annual Report	Partial	2022 - 2025	Technical Working Group
b) Develop MoU with each ministry, institutions and partners as members of TWGS	MoU binding each partners and their roles are available	Output	Availability of MoU for each stakeholder as members of TWGS	Availability of MoU for each Ministry, Institutions and partners as members of TWGS	Once	Technical Working Group Committee - Annual Report	No	2022	Technical Working Group

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
c) Establish linkages between TWGs from national, district and Shehia levels	Evidence of formal working relationship between TWGs, District and Shehia coordination units is available	Progress	Availability of formal working relationship between TWGs, District and Shehia coordination units	Presence of formal working relationship between TWGs, District and Shehia coordination units	Annual	One Health Steering Committee - Annual report	No	2022	Technical Working Group
a) Develop, review and revise MoU to reflect one health among relevant research institutions and laboratories services	Evidence of MoUs and developed among research institutions	Process	Number of research institutions review and revised MoU reflected to One Health	Availability of revised MoU from research institutions and laboratories which reflect with One Health aspect	Annual	MoEVT, MoHSWEGS, MAINL&Blue Economic and Universities - Annual report	No	2022 - 2025	Technical Working Group
b) Conduct inventory on existing capacity - develop database	Data-base of inventory on existing institutional research capacity developed	Process	Availability of Data-base of inventory on existing institutional research capacity	Present of Data-base of inventory on existing institutional research capacity	Annual	MoEVT, MoHSWEGS, MAINL&Blue Economic and Universities - Annual report	No	2022 - 2025	Technical Working Group

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
c) Develop SOPs for all collaborating One Health research institutions	Evidence of One Health SOPs	Output	Availability of SOPs for One Health to all collaborating One health Institution	Number of Research Institution which develop SOPs for One Health activities	Annual	MoEVT, MoHSWEGS, MAINL&Blue Economic and Universities - Annual report	No	2022 - 2025	MoEVT, MoHSWEGS, MAINL&Blue Economic and Universities
a) Procure laboratory requirements based on research needs	Inventory of procured lab equipment and supplies are available	Output	Number of Laboratory equipment and supplies procured	Total number of Laboratory equipment and supplies procured	Annual	MoEVT, MoHSWEGS, MAINL&Blue Economic and Universities - Annual report	No	2022 - 2025	MoEVT, MoHSWEGS, MAINL&Blue Economic and Universities
b) To provide trainings to the staff of the OH institutes	Training report on types, modules, venue and names of personnel trained with details of cadre is available	Output	Number of staff from On Health Institutes receives training	Number of staff from On Health Institutes receives training	Annual	MoEVT, MoHSWEGS, MAINL&Blue Economic and Universities - Annual report	No	2022 - 2025	MoEVT, MoHSWEGS, MAINL&Blue Economic and Universities
c) Review the Institutional policy and regulations on utilization of laboratory services to integrated use (human/ animals)	Reviewed policies and regulations	Output	Number of policies and regulations reviewed	Number of policies and regulations for laboratory services reviewed	Annual	MoEVT, MoHSWEGS, MAINL&Blue Economic and Universities - Annual report	No	2022	MoEVT, MoHSWEGS, MAINL&Blue Economic and Universities

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
a) Conduct workshops/ Seminars with stakeholders for reviewing the Zanzibar research agenda	Research agenda reviewed	Output	Number of workshops/ Seminars for reviewing the Zanzibar research agenda conducted	Number of workshops/ Seminars for reviewing the Zanzibar research agenda conducted	Once	MoEVT, MoHSWEGS, MAINL&Blue Economic and Universities - Annual report	No	2022	Technical Working Group Committee
a) Literature review and surveying of all the institutions for shelved research findings.	Research findings are in place	Progress	Number of Research documents are in place	Number of Research finding documents in the institutions are in place	Annual	MoEVT, MoHSWEGS, MAINL&Blue Economic and Universities - Annual report	No	2022	Technical Working Group Committee
a) To establish scientific forum to the stakeholders	Number of forums conducted	Progress	Number of scientific forums form stakeholders conducted	Number of scientific forums form stakeholders conducted as planned	Annual	Technical Working Group Committee - Annual Report	No	2022 - 2025	Technical Working Group Committee
b) Conduct workshops to stakeholders and end users	Research findings are disseminated and in use	Progress	Number of stakeholders attended dissemination workshop for Research findings	Number of stakeholders attended dissemination workshop for Research findings	Annual	MoEVT, MoHSWEGS, MAINL&Blue Economic and Universities - Annual report	No	2022 - 2025	Technical Working Group Committee

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
a) Writing proposals for requesting grants from different sources	Proposal write-ups in place	Output	a) Writing proposals for requesting grants from different sources	a) Writing proposals for requesting grants from different sources	Annual	Technical Working Group Committee - Annual Report	No	2022 - 2025	Technical Working Group Committee
b) Develop network with different partners.	Functional network	Output	Number of different partners joined in the network	Number of different partners joined in the network	Annual	Technical Working Group Committee - Annual Report	No	2022 - 2025	Technical Working Group Committee
a) Establish coordinated and functional Multidisciplinary emergency preparedness and response teams with TORs	Presence of TORs and functional multidisciplinary Emergency preparedness teams and number of outbreaks and antimicrobial resistance responded within a specified time	Output	Number of multidisplinary on emergency preparedness and response with TORs established	Number of multidisplinary on emergency preparedness and response with TORs established	Annual	Technical Working Group Committee - Annual Report	No	2022 - 2025	Technical Working Group Committee

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
b) Create a joint human resource mobilizing mechanism through the SVPO from involved ministries and agencies	Common HR mobilization mechanism developed	Process	Number of Ministries and Agencies involved in joint human resources mobilization created	Number of Ministries and Agencies involved in joint human resources mobilization created	Annual	One Health Steering Committee - Annual report	No	2022 - 2025	One Health Steering Committee
c) Develop a sustainable mechanism for soliciting operational funds for emergency preparedness and response	Mechanism for fund raising developed	Output	Number and type of fund raising mechanism developed	Number and type of fund raising mechanism developed	Annual	One Health Steering Committee - Annual report	No	2022 - 2025	One Health Steering Committee
d) Establish emergency preparedness (EP) funds	Availability of emergency preparedness funds.	Output	Availability of amount of fund for emergency preparedness	Availability of amount of fund for emergency preparedness	Annual	One Health Steering Committee - Annual report	No	2022 - 2025	One Health Steering Committee
a) Conduct tabletop simulation exercises.	Number of simulation exercises conducted	Output	Number of simulation exercises prepared	Number of simulation exercises prepared	Annual	Technical Working Group Committee - Annual Report	No	2022 - 2025	Technical Working Group Committee

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
b) Conduct field simulation exercises.	Number of simulation exercises conducted	Output	Number of field simulation exercises conducted	Number of field simulation exercises conducted	Annual	Technical Working Group Committee - Annual Report	No	2022 - 2025	Technical Working Group Committee
2.1.1. Develop TORs of RRT	Availability of TORs	Output	Number of Registered Respiratory Therapist (RRT) given TORs	Number of Registered Respiratory Therapist (RRT) given TORs	Annual	Technical Working Group Committee - Annual Report	No	2022 - 2025	Technical Working Group Committee
2.1.2. Train RRT on case management and proper IPC	RRT able to respond to an outbreak	Process	Number of trained Registered Respiratory Therapist (RRT) manage to respond on outbreak	Number of trained Registered Respiratory Therapist (RRT) manage to respond on outbreak	Annual	Technical Working Group Committee - Annual Report	No	2022 - 2025	Technical Working Group Committee
2.1.3. Train RRT on legal and movement control	RRT able to contain an outbreak	Output	Number of Registered Respiratory Therapist (RRT) trained on legal and movement control	Number of Registered Respiratory Therapist (RRT) trained on legal and movement control	Annual	Technical Working Group Committee - Annual Report	No	2022 - 2025	Technical Working Group Committee
e) Identify area for treatment Centre's in each district	Number of treatment Centre's in the districts identified	Output	Availability of treatment Centre's in each district identified	Availability of treatment Centre's in each district identified	Once	Technical Working Group Committee - Annual Report	No	2022	Technical Working Group Committee

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
a) Develop integrated guidelines and contingency plans for coordinated emergency preparedness and response of zoonotic diseases and antimicrobial resistance.	Available of Integrated One health guidelines with emergency guidelines	Output	Number and types of guidelines for Integrated One health and emergency guidelines were developed	Number and types of guidelines for Integrated One health and emergency guidelines were developed	Once	Technical Working Group Committee - Annual Report	No	2022	Technical Working Group Committee
b) Develop coordinated standard operating procedures for emergence preparedness and response.	Emergency preparedness and response SOPs are developed and disseminated among all stakeholders	Output	Availability of standard Emergency preparedness and response SOPs among all stakeholders	Availability of standard Emergency preparedness and response SOPs among all stakeholders	Once	Technical Working Group Committee - Annual Report	No	2022	Technical Working Group Committee
a) Develop recovery plans for psychosocial effects of the epidemic	Presence of recovery plans for psychosocial effected with epidemics	Output	Presence of recovery plans for psychosocial effected with epidemics	Presence of recovery plans for psychosocial effected with epidemics	Once	Technical Working Group Committee - Annual Report	No	2022	Technical Working Group Committee
b) Develop practical guidelines on psychosocial support	Practical guidelines on psychosocial support developed	Output	Number of psychosocial Practical guidelines developed	Number of psychosocial Practical guidelines developed	Once	Technical Working Group Committee - Annual Report	No	2022	Technical Working Group Committee

Strategic activities	Indicators	Types of Indicator	Definition	Value calculation/ formula	Frequency of data collection	Data source	Baseline 2020/21	Target - Timeframe	Responsible organization
c) Conduct psycho socioeconomic support to affected families and companies	Number of psycho socioeconomic support offered to affected families and companies	Progress	Number of psycho socioeconomic support offered among affected families and companies	Number of psycho socioeconomic support offered among affected families and companies	When needed	Technical Working Group Committee - Annual Report	No	2022 - 2025	Technical Working Group Committee
d) Develop restocking plans	Stock gap analysis	Output	Number of affected families/community analyzed required restocking demands	Number of affected families/ community analyzed required restocking demands	When needed	Commission of Disaster Management - Annual report	No	2022 - 2025	Commission of Disaster Management
e) Develop joint risk assessment post outbreak	Efficient OH outbreak management	Output	Number of posts to manage outbreak developed	Number of posts to manage outbreak developed	When needed	Commission of Disaster Management - Annual report	No	2022 - 2025	Commission of Disaster Management

Principal Secretary
Second Vice Present's Office
Revolutionary Government of Zanzibar
Vuga Street, P. O. Box 239, Zanzibar - Tanzania
+255 (0) 24 223 0808
http://www.ompr.go.tz/