

# JOINT EXTERNAL EVALUATION OF IHR CORE CAPACITIES

of the

## UNITED REPUBLIC OF TANZANIA - ZANZIBAR

Mission report:  
22–28 April 2017



World Health  
Organization



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## UNITED REPUBLIC OF TANZANIA - ZANZIBAR

Mission report:  
24–28 April 2017

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# Contents

Abbreviations----- vi

Executive Summary ----- 1

Zanzibar’s scores----- 4

**PREVENT ----- 6**

National legislation, policy and financing----- 6

IHR coordination, communication and advocacy ----- 9

Antimicrobial resistance ----- 11

Zoonotic diseases----- 15

Food safety----- 18

Biosafety and biosecurity ----- 20

Immunization----- 23

**DETECT ----- 26**

National laboratory system----- 26

Real-time surveillance----- 30

Reporting----- 33

Workforce development ----- 35

**RESPOND ----- 38**

Preparedness ----- 38

Emergency response operations----- 40

Linking public health and security authorities----- 44

Medical countermeasures and personnel deployment----- 46

Risk communication----- 49

**OTHER ----- 52**

Points of entry ----- 52

Chemical events----- 54


Radiation Emergencies----- 57

Appendix : Joint External Evaluation Background ----- 60

## Abbreviations

<b>AEFI</b>	Adverse events following immunization
<b>AFENET</b>	African Field Epidemiology Network
<b>AMR</b>	Antimicrobial resistance
<b>CGCLA</b>	Chief Government Chemist Laboratory Agency
<b>CMS</b>	Central Medical Stores
<b>DHIS</b>	District Health Information Software
<b>ECC</b>	Emergency Communication Centre
<b>EOC</b>	Emergency Operations Centre
<b>EPI</b>	Expanded Programme on Immunization
<b>EQAP</b>	External quality assurance programmes
<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>FETP</b>	Field Epidemiology Training Programme
<b>HCAI</b>	Health care-associated infection
<b>HPLC</b>	High-performance liquid chromatography
<b>HR</b>	Human resources
<b>IDSR</b>	Integrated Disease Surveillance and Response (framework)
<b>IPC</b>	Infection prevention and control
<b>JEE</b>	Joint External Evaluation
<b>LQMS</b>	Laboratory quality management system
<b>MCM</b>	Medical countermeasures
<b>MoH</b>	Ministry of Health
<b>MoU</b>	Memorandum of understanding
<b>NFP</b>	National IHR Focal Point
<b>OIE</b>	World Organisation for Animal Health
<b>PCR</b>	Polymerase chain reaction
<b>Pemba</b>	Pemba island of Zanzibar
<b>PHEIC</b>	Public health emergency of international concern
<b>PHL-IdC</b>	Public Health Laboratory Ivo de Carneri
<b>PLMMH</b>	Pathology laboratory Mnazi Mmoja Referral Hospital
<b>PoE</b>	Points of entry
<b>PPE</b>	Personal protection equipment
<b>QMS</b>	Quality management system
<b>Shehia</b>	Lowest Administrative structure in Zanzibar
<b>TAEC</b>	Tanzania Atomic Energy Commission





<b>ToR</b>	Terms of reference
<b>UNICEF</b>	United Nations Children’s Fund
<b>WHO</b>	World Health Organization
<b>ZEPRP</b>	Zanzibar Emergency Preparedness and Response Plan
<b>ZFDB</b>	Zanzibar Food and Drug Board



# Executive Summary

## Findings from the Joint External Evaluation

The evaluation was a joint assessment of International Health Regulations (IHR) core capacities of Zanzibar using the World Health Organisation (WHO) International Health Regulation Joint External Evaluation (JEE) tool. It involved a multi-sectoral International External Evaluation Team (EET) selected on the basis of their special expertise from a number of countries and international organisations. The evaluation mission took place from the 24<sup>th</sup> to 28<sup>th</sup> April 2017. It comprised of presentations, discussions and field site visits at the national and sub-national levels that included the regions and the districts in the islands of Unguja and Pemba in Zanzibar. The report presents a jointly developed recommendations and priority action areas that resulted from discussions between the external and internal evaluation teams covering all the 19 technical areas.

Zanzibar is hereby commended for requesting to conduct an IHR core assessment capacity, being the 13<sup>th</sup> in Africa after Eritrea, Ethiopia, Ghana, Kenya, Cote d'Ivoire, Liberia, Morocco, Guinea, Mauritania, Mozambique, Namibia, Senegal, Sierra Leone and Tanzania mainland. The Joint External Evaluation was preceded by a very successful Self-evaluation that involved a number of sectors both at national and sub-national levels. The stakeholders included participation from public health, animal health, disaster management, environment, agriculture, immigrations, security, customs, Airports Authority and Atomic Energy Commission.

The Revolutionary Government of Zanzibar has two main islands – Unguja and Pemba with three and two regions respectively. Unguja comprises North Unguja region (with 2 districts-North A and B), South Unguja (with South and Central Districts) and Urban West Region (with Urban, West A and West B districts) and for Pemba, North Pemba (with Wete and Micheweni districts and South Pemba (with ChakeChake and Mkoani districts). There are several smaller islands around each main island. Zanzibar lies between 4.5o-6.5o and 39o-40oE and between 30 – 50 km off the east coast of Tanzania mainland in the Indian Ocean. According to the 2012 census, Zanzibar had a population of 1,303,569; 896,721 (68.9%) living in Unguja and 406,848 (31.1%) living in Pemba with a growth rate of 3.1% with about 70 % and 30% living in the rural and urban areas respectively (United Republic of Tanzania, 2012 census).

## Principal Findings:

Seven cross-cutting themes were recognised during the evaluation:

- a. Need for multi-sectoral coordination between sectors and levels of administration:** There is need for a multi-sectoral coordination mechanism in Zanzibar on the following:
  - Development of national action plan with well-defined integrated surveillance strategy for detection and reporting on Anti-microbial resistance (AMR);
  - Establish and strengthen national reference laboratories for AMR testing in both sectors that includes a section on awareness creation on AMR;
  - Strengthen the surveillance coordination structures at national, regional and district level with clear terms of reference;
  - Establish linkages to address biosafety/biosecurity among human, animal and environmental health sectors in line with the One Health (OH) approach;
  - Establishment of a One Health coordination unit. The establishment of the One Health coordination unit will result in the systematic prioritisation of zoonotic diseases;

- Establish a multi-sectoral IHR coordination committee to promote joint decision-making and timely reporting to the National Focal Point (NFP) in response to a potential PHEIC for relevant zoonotic diseases. The working of the committee will be strengthened by designation of an OIE focal person in Zanzibar who will link with the national OIE delegate in mainland United Republic of Tanzania to notify OIE on important epidemiological events occurring in Zanzibar;
  - Establish linkages to address biosafety/biosecurity among human, animal and environmental health sectors based on the One Health approach;
  - Establish a coordination mechanism that includes stakeholders of all relevant sectors at Points of entry i.e. (PoE), Ministries of Health; Agriculture, Livestock and Fisheries and Natural Resources.
- b. Development/review of guides, acts, legislation, policy, plans and strategies:** This process cuts across sectors and technical areas i.e.:
- Conduct comprehensive review of the existing legislation and policies related to implementing the IHR (2005);
  - Update or enact legislation to address gaps so as to have comprehensive legislation across a number of sectors and technical areas;
  - Review and implement the Zanzibar laboratory policy using the One Health approach;
  - Review legislation, policy and plans to enable surveillance and response to chemical events and to further strengthen prevention in Zanzibar context;
  - Develop a Zanzibar radiation control plan that is aligned with the atomic energy Act, No. 7 of 2003 of the United Republic of Tanzania.
- c. Strengthening Surveillance systems:** There is a need to come up with a strong multi-sectorial surveillance system across the key sectors and key technical areas i.e. AMR, National laboratory systems, real time surveillance, preparedness, reporting, points of entry and other hazards. This will be achieved through the following:
- Strengthening surveillance and laboratory response to food – borne events of importance that include routine inspections;
  - Supply laboratories with adequate knowledge/support, equipment and reagents/kits for surveillance of priority zoonotic diseases;
  - Coordination of joint animal – human surveillance involving both epidemiology and laboratory units with international liaison on reporting through relevant information systems to OIE and WHO. This will result in a robust functional surveillance system that will be able to detect and report potential PHEICs that may occur in Zanzibar;
  - Develop and implement an individual sent electronic surveillance system e.g. e-IDSR and EMA-i for real time surveillance in the human and animal health sectors respectively.
- d. Development / review of Standard operating procedures (SOPs):** This activity cuts across sectors in a number of technical areas, i.e.:
- Development of SOPs to enhance the communication mechanism between relevant ministries and sectors at all levels of operation i.e. tertiary, secondary and primary;
  - Develop and implement a strategic plan that addresses specimen management, supply chain management and quality management systems (QMS) in all laboratories;
  - Development and or review of SoPs for response to food safety related events;
  - Development of national SoPs and regulations that govern reporting to WHO that clearly specify the

linkages between national focal point (NFP) sub-centre in Zanzibar and the NFP on the mainland United Republic of Tanzania.

**e. Trainings / drills and simulations:** Through these activities, the human resources will be strengthened to implement the IHR requirements. Key among them include:

- Develop and implement formal training plans in biosafety and biosecurity for laboratory personnel;
- Train health workers on Integrated Disease Surveillance and Response (IDSR) and basic epidemiological skills at all levels in order to build a critical mass of health workers with the necessary skills for surveillance and response’;
- Conducting broad training sessions on disease surveillance, management and response that will be done across sectors and technical areas;
- Provide chemical hazard training to staff tasked with responding to chemical emergencies;
- Conduct joint trainings, drills and simulations involving relevant stakeholders to test the functionalities of a number of stakeholders involved in each technical area that requires joint operations i.e. preparedness, emergency operation Centre, linking public health systems and securities, points of entry, chemical events and Radiation emergencies;
- Training staff on the communication system used in the Emergency Coordination Centre.

**f. Communication:** Enhancement will result on improved implementation of the 19 technical areas. The activities that need to be done include:

- Establishing information sharing mechanism especially in the Linking Public health systems and security technical area;
- Establish specific public health risk communication system that transmits two-way information between local, regional and national levels.

**g. Funding:** Financing various activities adequately will facilitate smooth implementation of IHR (2005). These include:

- Operationalization of the funding mechanism to ensure the budget lines for routine and emergency funding are enforced;
- Develop and costing the priority activities for linking public health and security agencies in the national action plan for health security.

### Immediate steps:

The following are the immediate steps for implementation following the JEE assessment:

- Finalisation, dissemination and publication of the Joint External Evaluation assessment report after consultation with Zanzibar authorities;
- Develop and finalise costed national action plan (NAP) using recommendations from the JEE report based on identified priority action areas taking cognisance of other evaluations like the Performance of Veterinary Services (PVS). These other evaluations should be part of the National Action Plan that should be anchored on the One Health approach.

## Zanzibar's Scores

Capacities	Indicators	Score
<b>National Legislation, Policy and Financing</b>	P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR.	2
	P.1.2 The state can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with the IHR (2005)	2
<b>IHR Coordination, Communication and Advocacy</b>	P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR.	2
<b>Antimicrobial Resistance</b>	P.3.1 Antimicrobial resistance (AMR) detection	1
	P.3.2 Surveillance of infections caused by AMR pathogens	1
	P.3.3 Healthcare associated infection (HCAI) prevention and control programmes	1
	P.3.4 Antimicrobial stewardship activities	1
<b>Zoonotic Disease</b>	P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens	2
	P.4.2 Veterinary or Animal Health Workforce	2
	P.4.3 Mechanisms for responding to zoonoses and potential zoonoses are established and functional	2
<b>Food Safety</b>	P.5.1 Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination.	1
<b>Biosafety and Biosecurity</b>	P.6.1 Whole-of-Government biosafety and biosecurity system is in place for human, animal, and agriculture facilities	2
	P.6.2 Biosafety and biosecurity training and practices	1
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national programme	3
	P.7.2 National vaccine access and delivery	3
<b>National Laboratory System</b>	D.1.1 Laboratory testing for detection of priority diseases	1
	D.1.2 Specimen referral and transport system	1
	D.1.3 Effective modern point of care and laboratory based diagnostics	1
	D.1.4 Laboratory Quality System	1
<b>Real-Time Surveillance</b>	D.2.1 Indicator and event based surveillance systems	2
	D.2.2 Inter-operable, interconnected, electronic real-time reporting system	1
	D.2.3 Analysis of surveillance data	1
	D.2.4 Syndromic surveillance systems	2
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE	N/A
	D.3.2 Reporting network and protocols in country	N/A
<b>Workforce Development</b>	D.4.1 Human resources are available to implement IHR core capacity requirements	2
	D.4.2 Field Epidemiology Training Program or other applied epidemiology training programme in place	4
	D.4.3 Workforce strategy	2

<b>Preparedness</b>	R.1.1 Multi-hazard National Public Health Emergency Preparedness and Response Plan is developed and implemented	<b>1</b>
	R.1.2 Priority public health risks and resources are mapped and utilized.	<b>1</b>
<b>Emergency Response Operations</b>	R.2.1 Capacity to Activate Emergency Operations	<b>1</b>
	R.2.2 Emergency Operations Center Operating Procedures and Plans	<b>1</b>
	R.2.3 Emergency Operations Programme	<b>2</b>
	R.2.4 Case management procedures are implemented for IHR relevant hazards.	<b>2</b>
<b>Linking Public Health and Security Authorities</b>	R.3.1 Public Health and Security Authorities, (e.g. Law Enforcement, Border Control, Customs) are linked during a suspect or confirmed biological event	<b>1</b>
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency	<b>1</b>
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency	<b>1</b>
<b>Risk Communication</b>	R.5.1 Risk Communication Systems (plans, mechanisms, etc.)	<b>2</b>
	R.5.2 Internal and Partner Communication and Coordination	<b>3</b>
	R.5.3 Public Communication	<b>3</b>
	R.5.4 Communication Engagement with Affected Communities	<b>2</b>
	R.5.5 Dynamic Listening and Rumour Management	<b>2</b>
<b>Points of Entry (PoE)</b>	PoE.1 Routine capacities are established at PoE.	<b>1</b>
	PoE.2 Effective Public Health Response at Points of Entry	<b>1</b>
<b>Chemical Events</b>	CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies.	<b>1</b>
	CE.2 Enabling environment is in place for management of chemical Events	<b>1</b>
<b>Radiation Emergencies</b>	RE.1 Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies.	<b>1</b>
	RE.2 Enabling environment is in place for management of Radiation Emergencies	<b>1</b>

# PREVENT

## National Legislation, Policy and Financing

### Introduction

The IHR (2005) provide obligations and rights for States Parties. In some States Parties, implementation of the IHR (2005) may require new or modified legislation. Even if new or revised legislation may not be specifically required, States may still choose to revise some regulations or other instruments in order to facilitate IHR implementation and maintenance in a more effective manner. Implementing legislation could serve to institutionalize and strengthen the role of IHR (2005) and operations within the State Party. It can also facilitate coordination among the different entities involved in their implementation. See detailed guidance on IHR (2005) implementation in national legislation at ([http://www.who.int/ihr/legal\\_issues/legislation/en/index.html](http://www.who.int/ihr/legal_issues/legislation/en/index.html)). In addition, policies which identify national structures and responsibilities as well as the allocation of adequate financial resources are also important.

### Target

*States Parties should have an adequate legal framework to support and enable the implementation of all of their obligations and rights to comply with and implement the IHR (2005). In some States Parties, implementation of the IHR (2005) may require new or modified legislation. Even where new or revised legislation may not be specifically required under the State Party's legal system, States may still choose to revise some legislation, regulations or other instruments in order to facilitate their implementation and maintenance in a more efficient, effective or beneficial manner.*

*State parties should ensure provision of adequate funding for IHR implementation through national budget or other mechanism.*

### Zanzibar's Level of Capabilities

As part of the United Republic of Tanzania, Zanzibar is obligated to comply with International Health Regulations (IHR) (2005) that were ratified 2007. Within Zanzibar there exists legislation pertaining to IHR (2005), such as the Quarantine Rule, Cap. 74 and the Disaster Management Act, No. 2 of 2003. In compliance with IHR (2005), Zanzibar has assessed individual legislation and policies to see whether they meet IHR standards. These include: the Public and Environmental Health Act, No. 11 of 2012, the Zanzibar Disaster Risk Reduction and Management Act, No. 1 of 2015, the Zanzibar Environmental Management Act, No. 3 of 2015, the National Health Policy of Zanzibar of 2010, the Zanzibar Disaster Management Policy 2011, the Zanzibar Health Sector Strategic Plan III 2013/2014-2018/2019. In addition, Zanzibar has enacted several pieces of legislation in implementation of IHR (2005), such as the Public Finance Act, No. 12, 2005, under which the minister responsible for finance is empowered to establish a special fund to be used for emergencies.

Further, policies and plans are in place to make sure that the IHR (2005) is effectively operationalized. The Zanzibar Disaster Risk Reduction and Management Act, No. 1 of 2015 establishes a disaster management fund but this has not been put into practice so far. Zanzibar has no special fund for epidemics and other emergencies but in case of any emergency, respective sectors may apply to Ministry of Finance for funds from the to respond to the emergency. There are limited resources in financing the health system in Zanzibar. Consequently, Zanzibar has been struggling to achieve the IHR (2005) core capacities.

It was noted that once Zanzibar conducts a comprehensive review of existing legislation and policies with



respect to IHR (priority action 1), Zanzibar's scores in this technical area should increase to 3 and 3.

It was further noted that the issue of funding the national disaster management emergency operations centre should be addressed under this technical area.

## Recommendations for Priority Actions

- Conduct a comprehensive review of the existing legislation and policies related to implementing the IHR (2005), before the end of 2018.
- Update or enact legislation to address the gaps in legislation identified through the comprehensive review.
- Establish or vote on a sustainable budget line that would be used for emergencies and one that would provide routine funding for IHR implementation (i.e. create a funding mechanism).
- Operationalize the funding mechanism to ensure the budget lines for routine and emergency funding are enforced.

## Indicators and Scores

### **P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR – Score 2**

#### *Strengths/Best Practices*

- Zanzibar has reviewed and enacted several legislations and policies to comply with IHR (2005).
- Drafting of port health guidelines has been conducted and discussed by all stakeholders and is in the final stages of being endorsed.
- There is a functioning technical committee chaired by the Principal Secretary in the Vice President's Office, which advises a special commission that reports to the Second Vice President's Office on all matters regarding disaster management.
- Frequent cholera outbreaks have forced the local government authorities to conduct public awareness campaigns on the need to abide with sanitary and hygienic measures to prevent cholera.

#### *Areas that need strengthening/challenges*

- There is a need to make regulations and rules for better enforcement of legislation and policies and allocation of a special fund for disaster management and other health emergencies in the annual budget.
- There is a need to improve the sharing of information at all levels.
- No comprehensive review of legislation has been conducted for the "One Health" approach.

### **P.1.2 The state can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with the IHR (2005) – Score 2**

#### *Strengths/Best Practices*

- There is high-level government commitment to supervise disasters and other emergencies.
- There exists the Zanzibar Healthy Policy of 2011 and Zanzibar Health Sector Strategic Plan III 2013/2014–2018/2019.
- The National Security Council Act, No. 8 of 2010 of the United Republic of Tanzania empowers specific authorities to undertake relevant actions in response to certain threats or disasters.

- During the 2016 cholera outbreak, street vendors were prohibited from selling foods on the streets in Zanzibar.
- During the global avian influenza outbreak in 2003, there was a ban of importation of poultry and poultry products from outside Zanzibar.

#### ***Areas that need strengthening/challenges***

- Comprehensive assessment of legislations and policies are required to determine whether there are any gaps in the implementation of IHR (2005).
- A Zanzibar IHR Focal Point needs to be established and his/her details subsequently published in the Official Gazette (see technical area IHR coordination for more on the discussion).
- Implementation of a coordination mechanism, as established under the legal framework of Zanzibar, is also a challenge.

# IHR Coordination, Communication and Advocacy

## Introduction

The effective implementation of the IHR requires multi-sectoral/multi-disciplinary approaches through national partnerships for effective alert and response systems. Coordination of nation-wide resources, including the designation of an IHR NFP, which is a national centre for IHR communications, is a key requisite for IHR implementation.

### Target

*The NFP should be accessible at all times to communicate with the WHO IHR Regional Contact Points and with all relevant sectors and other stakeholders in the country. States Parties should provide WHO with contact details of NFPs, continuously update and annually confirm them.*

## Zanzibar's Level of capabilities

Zanzibar is part of the National IHR Focal Point (NFP) that is accessible at all times for communications with WHO IHR Contact Points under the IHR. The IHR NFP is made up of members from different ministries including foreign affairs. The IHR NFP Secretariat is made up of members from Human Health (epidemiology), Points of entry, Disaster Commission, Home Affairs and Animal Health. The IHR National Focal Point meets on a quarterly basis but the secretariat meets on ad hoc basis. The Zanzibar IHR focal person is stationed at the Ministry of Health.

The issue of the National IHR Focal Point of the United Republic of Tanzania was discussed in detail during the plenary. It was agreed that a "sub IHR focal point" or unit of two people be established to coordinate issues within Zanzibar and report to the NFP. Since the current mechanism is not optimal, it was suggested that a mechanism be created to establish this reporting structure and enhance communication between the sub- and national IHR Focal Points.

## Recommendations for priority actions

1. Establish a functional IHR multi-sectoral coordinating mechanism for Zanzibar, including the development of SOPs for enhancing the communication mechanism and linkages between relevant ministries/sectors.
2. Develop terms of reference (ToRs) and build capacity for the National IHR Focal Point contact person/unit in Zanzibar and strengthen the link to the NFP in mainland United Republic of Tanzania.
3. Conduct IHR advocacy among stakeholders and decision-makers.
4. Update system for multi-sectoral collaboration and develop action plans that incorporate lessons learned for each ministry.
5. Establish a formal system to share IHR-specific reports and information between human health, animal health and other relevant sectors.

## Indicators and scores

### **P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR – Score 2**

#### *Strengths/best practices*

- A coordination structure in each ministry exists.
- There is informal inter-sectoral collaboration between the human health, animal health and other sectors.
- The 2015/2016 cholera epidemic in Zanzibar brought together relevant sectors/stakeholders.

#### *Areas that need strengthening/challenges*

- There is no functional centre for the IHR National Focal Point established in Zanzibar.
- Functions of the NFP have not been evaluated for their effectiveness.
- There are no SOPs for coordination of all stakeholders and government line ministries.
- A mechanism for timely and systematic information exchange between animal and human health is needed.
- Multi-sectoral collaboration needs to be updated and tested.
- Action plans that incorporate lessons learned need to be developed in each ministry.
- There is no formal system in place to share IHR-specific reports and information between human health, animal health and other relevant sectors.

# Antimicrobial resistance

## Introduction

Bacteria and other microbes evolve in response to their environment and inevitably develop mechanisms to resist being killed by antimicrobial agents. For many decades, the problem was manageable as the growth of resistance was slow and the pharmaceutical industry continued to create new antibiotics.

Over the past decade, however, this problem has become a crisis. Antimicrobial resistance is evolving at an alarming rate and is outpacing the development of new countermeasures capable of thwarting infections in humans. This situation threatens patient care, economic growth, public health, agriculture, economic security and national security.

### Target

*Support work coordinated by FAO, OIE and WHO to develop an integrated global package of activities to combat antimicrobial resistance, spanning human, animal, agricultural, food and environmental aspects (i.e. a One Health approach). Each country has: (i) its own national comprehensive plan to combat antimicrobial resistance; (ii) strengthened surveillance and laboratory capacity at the national and international levels following international standards developed as per the framework of the Global Action Plan; and (iii) improved conservation of existing treatments and collaboration to support the sustainable development of new antibiotics, alternative treatments, preventive measures and rapid point-of-care diagnostics, including systems to preserve new antibiotics.*

## Zanzibar's Level of Capabilities

Zanzibar's capacity for detection and reporting of AMR includes work at the following four laboratories: Pathology Laboratory Mnazi Mmoja Referral Hospital (on Unguja Island) and the Public Health Laboratory Ivo de Carneri (PHL-IdC) (on Pemba Island) for human health. In the animal health sector, the Veterinary Investigation Centre (Unguja) and the Wete Veterinary Laboratory (Pemba) can perform culture and sensitivity tests, which are part of AMR detection, but not the full suite of testing for AMR detection. For example, there is some capacity to test for *E. coli*, *K. pneumoniae*, *S. aureus*, *S. pneumoniae*, *Salmonella* spp., *Shigella* spp and *N. gonorrhoeae*. There is no specific report about AMR produced routinely but information on this topic is available within a general unpublished report of both the human and animal health sectors. However, Zanzibar does not currently conduct surveillance for antimicrobial resistance.

While there is no national plan for laboratory testing of WHO priority pathogens exists except for *Mycobacterium tuberculosis* or national plan for the detection and reporting of antimicrobial resistance (AMR) pathogens, national plans for (i) detection and reporting of priority AMR pathogens and (ii) surveillance of infections caused by priority AMR pathogens have been drafted and are awaiting signature by the relevant government official(s).

No national plan for health care-associated infection (HCAI) programmes is currently available, and Zanzibar does not have guidelines to protect health care workers from HCAI; this includes surveillance within high-risk groups to promptly detect clusters of HCAI. In addition Zanzibar lacks best practices in infection prevention and control (IPC) or a system to regularly evaluate the effectiveness of infection control measures and publish results. However, while there is no specific IPC policy, aspects of IPC are covered in other policies or guidelines (such as laboratory guidelines) available to health care workers.

No plan for antimicrobial stewardship exists in Zanzibar and there is no guidance on appropriate use of antimicrobials. No survey has been carried out to determine whether proper administration of antimicrobials has been implemented. No authority or centre in Zanzibar currently determines antimicrobial use patterns, monitors usage or adheres to guidance on appropriate antibiotic use.

Two livestock farms exist in Zanzibar and both raise mostly cattle; they act as sentinel sites for AMR detection in the animal health sector.

Currently capacity and detection of AMR is not systematic because the plan established for detection and response to AMR has not been signed and implemented. The score of 1 was chosen because of this and the fact that collaboration between the public and animal health sectors on this topic across indicators is insufficient. Once the plan is signed and implemented, and collaboration between the two sectors is formalized, Zanzibar may be able to be scored a 3 in this technical area.

### Recommendations for priority actions

- Conduct a situation analysis to identify gaps relevant to AMR in Zanzibar.
- Develop and implement the multi-sectoral national action plan on AMR with well-defined integrated surveillance strategy for detection and reporting of AMR, including from the animal health sector.
- Establish and strengthen national reference laboratories for AMR testing in both sectors, which includes a component on raising awareness about AMR.

### Indicators and scores

#### P.3.1 Antimicrobial resistance (AMR) detection – Score 1

##### *Strengths/Best Practices*

- There is an informal multidisciplinary technical working group on AMR surveillance.
- The Ministry of Health and the Ministry of Agriculture, Livestock and Fisheries and Natural Resources have agreed to draft a national action plan to combat AMR.
- Laboratories have some capacity (human and equipment) for detection and reporting of AMR.
- The national medical reference laboratory has International Organization for Standardization (ISO) quality accreditation.
- An integrated approach is being used to develop the AMR surveillance strategy and its inclusion in an IPC policy.
- Validated laboratory methods for internal quality control are done through test controls.
- External quality assurance and monitoring is done in the two human health laboratories.
- A quality management system (QMS) has been implemented.
- AMR detection is done through research and studies (e.g. Fever Study) and during outbreaks (e.g. susceptibility tests for cholera).

##### *Areas that need strengthening/challenges*

- Technical capacity for the detection and reporting of AMR in laboratories will need to be improved, especially at subnational level.
- There are difficulties in laboratory commodity supply chains, with implications on surveillance activities.
- A centralized laboratory surveillance reporting system is needed, which also covers the data coming from public health and veterinary sectors.

- Communication campaigns and efforts must be intensified to entrench the message of microbiology in public and veterinary facilities.

### **P.3.2 Surveillance of infections caused by AMR pathogens – Score 1**

#### ***Strengths/ Best Practices***

- Mnazi Mmoja Referral Hospital is a sentinel site for surveillance of infections caused by AMR pathogens among humans.
- The two large-scale livestock farms in Zanzibar are sentinel sites for surveillance of infections caused by AMR pathogens in animals.
- A long-standing surveillance system for tuberculosis exists.
- Potential sites for AMR surveillance have been identified.
- Meetings between the human and animal health sectors are being planned to develop the national plan for surveillance of infections caused by priority AMR pathogens.

#### ***Areas that need strengthening/challenges***

- The national AMR surveillance system should be fully implemented, including surveillance in the animal health sector.
- Sentinel sites should be activated for surveillance in the human and animal health sectors.
- Validated processes on this topic should be implemented and formal reports should be generated regularly.

### **P.3.3 Healthcare associated infection (HCAI) prevention and control programmes – Score 1**

#### ***Strengths/Best Practices***

- Operational plans and SOPs are available in the public hospitals.
- Isolation units at tertiary hospitals are available but the capacity is very limited.
- There are designated trained IPC professionals in all tertiary hospitals.

#### ***Areas that need strengthening/challenges***

- Guidelines for the protection of health care workers from health care-associated infection (HCAI) should be developed and implemented.
- Surveillance within high-risk groups to promptly detect clusters of HCAs should be developed and implemented.
- System to regularly evaluate the effectiveness of infection control measures and publish results should be developed and implemented.
- There is a need to develop a policy or mechanism to ensure a One Health approach is used for both the human and animal sectors.

### **P.3.4 Antimicrobial stewardship activities – Score 1**

#### ***Strengths/Best Practices***

- Prescriptions are required for antibiotic use in humans, but this is not strictly enforced.

#### ***Areas that need strengthening/challenges***

- A situation analysis is required to assess the gaps that exist in AMR detection in Zanzibar.

- A training curriculum on AMR for pre-service and in-service training that would reinforce the provisions for prudent and correct use of antimicrobials at all levels is required.
- An evaluation of antibiotic use patterns is needed.
- There is a need to fully implement antimicrobial stewardship activities in the animal health sector.



# Zoonotic Disease

## Introduction

Zoonotic diseases are communicable diseases and microbes spreading between animals and humans. These diseases are caused by bacteria, viruses, parasites and fungi that are carried by animals and insect or inanimate vectors may be needed to transfer the microbe. Approximately 75% of recently emerging infectious diseases affecting humans is of animal origin; approximately 60% of all human pathogens are zoonotic.

### Target

*Adopted measured behaviours, policies and/or practices that minimize the transmission of zoonotic diseases from animals into human populations.*

## Zanzibar's Level of Capabilities

A key strength in Zanzibar is that the concept of zoonotic disease control has existed for a long time. Veterinarians in laboratories inspect meat samples to control zoonotic diseases such as Cysticercosis, brucellosis and bovine tuberculosis in dairy cattle. To minimize the spread or full emergence of zoonotic disease into human populations, different disease-specific preparedness/contingency plans have been prepared to support the surveillance of zoonotic diseases in Zanzibar, which is a risk management best practice. In the early 2000s Zanzibar had prepared contingency plans for pandemic outbreaks, which were used during the outbreaks of avian influenza and swine influenza in 2003. In 2007, a similar contingency plan for Rift Valley fever outbreak control was prepared. Both documents elaborate how to conduct surveillance of these zoonotic diseases. Policies and or legislation to support the control of zoonotic diseases have given authority to different institutions within the livestock and human health sectors to assist with response to zoonotic disease outbreaks.

Control of zoonotic disease outbreaks of public health importance may be coordinated or led by the Zanzibar Disaster Management Commission, the Ministry of Health (MoH), and/or the Ministry of Agriculture, Livestock and Fisheries and Natural Resources, depending on the specific scenario. Management occurs in collaboration with stakeholders. A task force and technical committee are assembled to address each outbreak and members are mandated to give guidance to government officials and develop procedures on how to contain the disease. All the involved ministries have to conduct surveillance in their sector and share the data, while knowledge and experience gained during the outbreak control are also shared among them. Through designated laboratories and health facilities the MoH controls the disease in humans, while the Ministry of Agriculture, Livestock and Fisheries and Natural Resources is charged with the containment of zoonotic diseases in livestock and wild life. One Health surveillance and laboratory diagnosis are important areas in need of strengthening.

The Zanzibar Disaster Management Commission is responsible for the coordination of all stakeholders for control of zoonotic disease of public health importance during an outbreak. Coordination between human and animal health sectors thus exists, but this occurs more on a disease-specific and outbreak-specific basis rather than as part of a formal One Health programme. Building a One-Health framework may be one of the biggest challenges Zanzibar faces.

## Recommendations for Priority Actions

- Establish a National One-Health Coordination Unit.
- Perform a systematic prioritization of zoonotic diseases and develop an updated national plan for coordinated One-Health surveillance of those priority zoonotic diseases in both animal and human populations.
- Supply laboratories with adequate knowledge/support, laboratory equipment and reagents/kits for surveillance of priority zoonotic diseases.
- Implement database/software to manage and coordinate joint animal-human surveillance for both epidemiology units and laboratory use, with linkages internationally.

## Indicators and Scores

### P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens – Score 2

#### *Strengths/ Best Practices*

- Over time Zanzibar has created a de facto list of priority zoonotic disease of public health importance (rabies, brucellosis, bovine tuberculosis, Rift Valley fever, and avian influenza).
- There is a surveillance system in place for a number of priority zoonotic diseases of public health importance and the presence of collaborating stakeholders to conduct such surveillance.
- There is a cadre of livestock field officers and laboratory technologists for zoonotic diseases surveillance implementation.
- Zanzibar has built best practices in zoonosis control through contingency plans for specific diseases.
- Rabies investigation is well developed and well integrated; samples collected from the field are reliably sent to the laboratory for diagnosis.

#### *Areas that need strengthening/challenges*

- There is no One Health coordination unit.
- There is no overall surveillance plan. The implementation of surveillance for zoonotic diseases of public health importance during an outbreak occurs on an ad hoc basis. The national plans for avian influenza and Rift Valley fever are too old for surveillance implementation. There is a need to formulate/update the national plans for detection and reporting of priority zoonotic diseases of public health importance.
- There is no unified surveillance system/process for all priority zoonotic diseases of public health importance.
- There is inadequate use of an international database/software by epidemiology units and laboratories due to the lack of a comprehensive integrated system in those epidemiology units and laboratories.
- Surveillance and detection are challenged by a lack at laboratories of knowledge, reagents/kits and equipment for priority zoonotic diseases.
- There is inadequate knowledge on the use of modern laboratory tests, reagents/kits and equipment for zoonotic disease diagnosis.

### P.4.2 Veterinary or Animal Health Workforce – Score 2

#### *Strengths/ Best Practices*

- Although limited in number, there are experienced practitioners to combat zoonotic diseases in both human and animal health sectors.

- There is a strong basic workforce with the presence of animal health workers in every district on both Islands, as well as a focal point for rabies control and elimination at the district level.
- Best practices have been developed by experienced practitioners for handling cases during the suspected swine influenza outbreak in Zanzibar (2009), as well as for the handling of zoonotic diseases by the animal health workers in slaughter-houses and small-scale dairy farms.
- Good coordination between animal and human health workers for handling suspected rabies cases/ dog bites at the district and national levels is a best practice.

#### *Areas that need strengthening/challenges*

- More veterinary professionals with advanced degrees are needed at district level.
- Only para-veterinary workers are present at district level. The number is inadequate for the workload.
- Surveillance teams need to be established; there is insufficient staff for conducting surveillance of zoonotic diseases of public health importance.

### **P.4.3 Mechanisms for responding to zoonoses and potential zoonoses are established and functional – Score 2**

#### *Strengths/ Best Practices*

- There is a mechanism for responding to some infectious zoonotic diseases, including rabies, avian influenza and Rift Valley fever.
- Information exchange mechanisms exist between the animal health/wild life surveillance unit, human health surveillance unit and other relevant stakeholders.
- The actual information exchange between the Zanzibar Disaster Management Commission, MoH and Ministry of Agriculture, Livestock and Fisheries and Natural Resources when suspected cases of zoonotic disease have occurred is a best practice.

#### *Areas that need strengthening/challenges*

- There is no overarching strategic plan, national policy or contingency plan that applies to all priority zoonotic diseases. An updated and generalized mechanism for responding to zoonotic disease outbreaks needs to be established as part of a revision of policies, strategies and plans addressing priority zoonotic diseases.
- The information exchange system between the animal health/wild life surveillance unit and human health surveillance unit needs to be strengthened and formalized, and also expanded to better include surveillance data.
- No adequate information exchange system (database) exists to link the animal health/wild life surveillance unit and human health surveillance unit and guide the response for priority zoonotic diseases.

# Food safety

## Introduction

Food- and water-borne diarrhoeal diseases are leading causes of illness and death, particularly in less developed countries. The rapid globalization of food production and trade has increased the potential likelihood of international incidents involving contaminated food. The identification of the source of an outbreak and its containment is critical for control. Risk management capacity with regard to control throughout the food chain continuum must be developed. If epidemiological analysis identifies food as the source of an event, based on a risk assessment, suitable risk management options that ensure the prevention of human cases (or further cases) need to be put in place.

### Target

*Surveillance and response capacity among States Parties for food- and water-borne disease risks or events by strengthening effective communication and collaboration among the sectors responsible for food safety, and safe water and sanitation.*

### Zanzibar's level of capabilities

Regulation of food safety in Zanzibar is the responsibility of the Zanzibar Food and Drug Board (ZFDB) with a multidisciplinary staff of 63 people. This agency is empowered by the Zanzibar Foods Drugs and Cosmetics Act, No. 2 of 2006, which repeals and replaces the Pharmaceuticals and Dangerous Drugs Act, No.6 of 1986 and the Public Health Decree, Cap 73 of 1947.

ZFDB's Food Safety and Quality Department carries out i) food inspection and enforcement; ii) food evaluation and registration and iii) food risk analysis, among other things. Zanzibar depends heavily on imported foods due to relatively few food processing facilities and farms on the islands. Due to trade liberalization, adulterated and illegally imported foods sometimes find their way onto the islands with implications for the spread of food-borne diseases from exporting countries. In addition, compliance with regulations on food safety by food processing facilities and other food dealers is low in Zanzibar and quality assurance of food cannot be guaranteed.

Although the ZFDB complies with international food safety standards in its laboratories, many food safety-related events are not enumerated or reported. No rumour registry exists. In 2015/2016 there was a major cholera outbreak. While the authorities handled it, a comprehensive evaluation of the outbreak has not yet been completed. Focal persons have been identified but are yet to have appropriate training. However, not all stakeholders have been mapped and communication mechanisms between the relevant sectors are not in place at this time. Standard questionnaires are used to evaluate public health events and events are comprehensively described. The questionnaire is in the repository of the Zanzibar Disaster Management Commission. During outbreaks such as cholera, ZFDB participates as a stakeholder of the MoH by selecting MoH staff to participate in the response operation. The Zanzibar Disaster Management Commission under the Second Vice President's Office manages the standard questionnaires used to evaluate public health events and obtain results.

Zanzibar is not part of the International Food Safety Authority Network (INFOSAN). No specific details were given on how information is communicated among the different sectors, though it was noted in the plenary that collaboration between sectors is ad hoc and informal (e.g. between ZFDB and the Tanzania Atomic Energy Commission, TAEC).

## Recommendations for priority actions

- Identify focal points in all sectors relevant to food safety in Zanzibar.
- Formalize a mechanism for inter-sectoral collaboration, with clearly defined roles and responsibilities for each sector.
- Develop or review existing SOPs for response to food-related events.
- Strengthen surveillance and laboratory response to food-borne events of importance, including routine inspections.
- Strengthen reporting mechanisms between the ZFDB and the national IHR Focal Point for public health events.

## Indicators and scores

### P.5.1 Mechanisms for multi-sectoral collaboration established to ensure rapid response to food safety emergencies and outbreaks of foodborne diseases – Score 1

#### *Strengths/best practices*

- Necessary legislation exists, i.e. Zanzibar Foods Drugs and Cosmetics Act, 2006 and the National Health Policy of 2010.
- The food safety laboratories, supported by international organizations, are equipped with some laboratory resources and a small but qualified and experienced staff.
- There are three tests that can be performed including physical, chemical and microbiological testing, for both preliminary and confirmatory testing of samples.
- Best practices of food safety laboratories include the following: i) strong legal backing to fulfil the ZFDB mission; ii) strives to improve collaboration and improve its analyses; iii) ability to generate income from internal and external sources (with the potential to become self-sustaining); iv) facilities are easily accessible and the services are affordable.

#### *Areas that need strengthening/challenges*

- Laboratory facilities need to be upgraded and the current human resource capacity is inadequate to fulfil the mandate of the ZFDB.
- Many illegal points of entry exist in Zanzibar, through which many substandard and counterfeit products (including adulterated food products) enter the islands.
- Laboratories have limited modern equipment (only high-performance liquid chromatography, HPLC) for inspection and analysis; capacity could be significantly enhanced.
- There is also a need to carry out social awareness and sensitization on quality and safety of foods and the efficacy of food safety testing.

# Biosafety and Biosecurity

## Introduction

It is vital to work with pathogens in the laboratory to ensure that the global community possesses a robust set of tools – such as drugs, diagnostics and vaccines – to counter the ever-evolving threat of infectious diseases.

Research with infectious agents is critical for the development and availability of public health and medical tools that are needed to detect, diagnose, recognize and respond to outbreaks of infectious diseases of both natural and deliberate origin. At the same time, the expansion of infrastructure and resources dedicated to work with infectious agents have raised concerns regarding the need to ensure proper biosafety and biosecurity to protect researchers and the community. Biosecurity is important in order to secure infectious agents against those who would deliberately misuse them to harm people, animals, plants or the environment.

### Target

*A whole-of-government national biosafety and biosecurity system with especially dangerous pathogens identified, held, secured and monitored in a minimal number of facilities according to best practices; biological risk management training and educational outreach conducted to promote a shared culture of responsibility, reduce dual-use risks, mitigate biological proliferation and deliberate use threats, and ensure safe transfer of biological agents; and country-specific biosafety and biosecurity legislation, laboratory licensing and pathogen control measures in place as appropriate.*

## Zanzibar's level of capabilities

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 or no personnel trained in bio-risk management and shipping of infectious substances. Zanzibar mainly has a biosafety level 1 (BSL-1) reference/central laboratory in the veterinary sector (which also conducts work on rabies virus); these require infrastructure improvements and support with equipment to develop testing capacity for emerging dangerous pathogens with public health impact. In public health, Zanzibar has a few BSL-2 facilities, but with no provision for advanced or molecular testing of dangerous pathogens in enhanced BSL-2 or BSL-3 laboratories. With some exceptions (two BSL-2 facilities that also perform molecular testing in the public health sector), samples have to be transported off the islands for confirmation. Additionally, the infrastructural needs to ensure the containment of dangerous pathogens have not yet been assessed, and a national inventory of such pathogens has not yet been compiled.

The major challenge for implementing measures for biosecurity and biosafety is the limited funding from the government and the dependence on partners for the funding of biosecurity and biosafety activities.

From the laboratory perspective there has been a move towards molecular means of testing such as polymerase chain reaction (PCR) and serology to limit the need for culturing dangerous pathogens in the public health sector. The reference veterinary laboratory principally does basic microscopy, microbiology and serology tests but does not have requisite biosafety equipment such as biosafety cabinets to perform work with dangerous pathogens such as TB or avian influenza.

Although laboratory personnel in Zanzibar have participated in some training sessions on biosecurity and biosafety conducted on the mainland of the United Republic of Tanzania, there is no official training

programme and curriculum/plan in place and no formal database of trained personnel. Consequently, the training sessions are not well coordinated and often exclude some relevant sectors. To ensure development of sustained capacity, a comprehensive need assessment and development of a sustainable training plan should be outlined. In addition, training of laboratory staff should be continuous and laboratory mentorships instituted for the implementation of biosafety and biosecurity practices.

There is a lack of risk assessment or safety audit plan for biohazard procedures in all sectors and no framework exists to document, report, investigate and address incidents and accidents related to biological hazards. In addition, there is limited or no implementation of staff occupational health services in the health sector including vaccinations against pathogens that staff may encounter. These issues can be addressed through the development of a comprehensive policy on biosafety and biosecurity with a One Health perspective, in line with documents produced elsewhere in the United Republic of Tanzania or using them as guidance; designation of focal persons in all relevant sectors, with well-defined roles and responsibilities; a clear monitoring plan for regular safety audits of facilities and institutions dealing in biological hazards; and regular risk assessment of processes and procedures. There is a need for integration of biosafety and biosecurity training for all relevant stakeholders.

Zanzibar has started the process of addressing the gaps determined in this technical area. For example Zanzibar has started to monitor and develop a national inventory of dangerous pathogens; develop comprehensive legislation on biosafety and biosecurity; develop pathogen control measures, including standards for physical containment and operational handling and failure reporting systems; develop laboratory licensing. On the final point it was noted that the Mnazi Mmoja Referral Hospital is accredited as maintaining biosafety standards and employs an electronic database within which dangerous pathogens in its laboratory are catalogued, as evidenced by the site visit by subject matter experts during the mission. Mnazi Mmoja Referral Hospital could be used as an example on which to pattern biosafety and biosecurity of all public health laboratories in Zanzibar.

## Recommendations for priority actions

- Develop and implement biosafety and a biosecurity legislation/regulatory framework that encompasses the One Health approach and is in line with existing documents from the mainland of the United Republic of Tanzania.
- Conduct risk assessment and facility mapping for biosafety and biosecurity.
- Develop and implement formal training plans in biosafety and biosecurity for laboratory personnel.
- Establish linkages to address biosafety/biosecurity among human, animal and environmental health sectors in line with the One Health approach.

## Indicators and scores

### P.6.1 Whole-of-government biosafety and biosecurity system in place for human, animal and agriculture facilities – Score 2

#### *Strengths/best practices*

- Although there are no biosafety and biosecurity-related guidelines available, standard WHO biosafety guidelines and SOPs are followed in the laboratories and appropriate personal protection equipment (PPE) is available.
- There is a wide range of laboratories in Zanzibar (from MoH, animal health and food sectors and international partners) with qualified personnel at different levels – those holding certificates (2yrs), diplomas, advanced diplomas and professional degrees.
- Some laboratories participate in external quality assurance programmes (EQAP) and a few in the human health sector have initiated an accreditation process.

- There has been a third-party assessment for biosafety but not for biosecurity.
- There is some degree of licencing but only for private hospital facilities.
- Molecular diagnostic testing (i.e. PCR) is employed at the two major laboratories in Zanzibar for tuberculosis, indicating that efforts are being made to employ diagnostic methods that do not require culture.
- There are some physical security measures in place to minimize potential inappropriate removal or release of biological threats including security checks and CCTV camera monitoring at the Mnazi Mmoja Referral Hospital (Unguja Island) and the Public Health Laboratory Ivo de Carneri (Pemba Island).

#### *Areas that need strengthening/challenges*

- Development of necessary legislation for biosafety and biosecurity using the One Health approach is required, using available documentation from the mainland of the United Republic of Tanzania if available.
- Dangerous pathogens and toxins need to be consolidated into a minimum number of identified facilities.
- Laboratory facilities need to be upgraded, including infrastructure/building upgrades, provision of equipment and necessary reagents for priority public health diseases in both human and veterinary sector laboratories.
- Introduction of modern/point-of-care diagnostic capacity (molecular testing) needs to be built in the veterinary sector, so that essential tests can be safely conducted in Zanzibar.
- Formal training plans in biosafety and biosecurity for Laboratory personnel need to be developed and implemented.

### **P.6.2 Biosafety and biosecurity training and practices – Score 1**

#### *Strengths/best practices*

- Although there are no available legislation or biosafety and biosecurity-related guidelines available, standard WHO biosafety guidelines are followed in the laboratories.

#### *Areas that need strengthening/challenges*

- Capacity building of laboratory personnel for biosafety and biosecurity is required for all biosafety levels; this includes training of trainers so a cadre of skilled/master trainers are available in Zanzibar to provide future trainings and also raise awareness of the topic.
- There is a need for integration of biosafety and biosecurity training for all relevant stakeholders.
- Developing monitoring and evaluation plans for biosafety and biosecurity surveillance and implementation is required.
- Implementation of staff occupational health services, including vaccinations, is needed in the health sector.



# Immunization

## Introduction

Immunizations are estimated to prevent more than two million deaths a year globally. Immunization is one of the most successful global health interventions and cost-effective ways to save lives and prevent disease.

### Target

*A national vaccine delivery system – with nationwide reach, effective distributions, access for marginalized populations, adequate cold chain and ongoing quality control – that is able to respond to new disease threats.*

## Zanzibar's level of capabilities

Zanzibar has a functional immunization programme, which was launched in 1984; initially it targeted six diseases. Since 2014 there are about seven vaccines (with 12 antigens) provided under the Expanded Programme on Immunization (EPI) in Zanzibar. These are BCG, OPV, DPT-HepB- Hib, TT, MR, PCV13 and rotavirus. There are human resources for vaccination at all levels although they are reported as insufficient, especially in Pemba. The cold-chain system is adequate with 96% of health facilities having functioning vaccine refrigerators, and there are operational zonal vaccine stores on both Unguja and Pemba islands. The government has a budget line for procurement of all the standard vaccines through the United Nations Children's Fund (UNICEF). Routine vaccination is accessible to all eligible people at no cost. In addition, supplementary immunization campaigns for measles are conducted every three years to provide a second opportunity for vaccination of children aged under 5 years. The last one was conducted in 2014.

There is a surveillance system for adverse events following immunization (AEFI), with an AEFI board in every district, which is tasked with investigation of any reported AEFIs in the district. The vaccination coverage for all antigens is above 80%. The measles vaccination coverage, however, has declined from 93% to 86% in the past five years, but no investigation has been done to ascertain the cause of the declining trend. Zanzibar reports no known sociocultural or religious hindrances to vaccination. The last measles outbreak in Zanzibar was in 2013. Immunization data provided was mainly administrative. The data are collected from health facility level and a database is available and used at district and national level. However, additional analysis of data and validation is needed, particularly analysing the coverage by subnational levels to understand the areas contributing to the declining coverage over the past several years so that measures are taken to reverse the trend.

One of the best practices that enabled to the high coverage is high government commitment (government procures 100% of the EPI vaccines). Another is the good health infrastructure of the health system in Zanzibar that helped immunization services reach all children. Zanzibar has multi-year as well as annual EPI plans.

Vaccination coverage is measured monthly at health facility, district and national levels. There are also monitoring meetings to review the coverage quarterly, biannually and annually. Data quality assessments are conducted regularly at health facility and district level; a comprehensive EPI review is done every five years involving national, regional and facility levels (the last one was done in 2015).

Key features of the Zanzibar immunization programme include:

- Zanzibar has over the years invested in set up of a robust immunization programme including a strong cold-chain system that is accessible to people in all parts of Zanzibar. However, effort is needed to sustain this.
- The people are generally very receptive to the immunization programme evidenced by the persistent high coverage for all the antigens and about 80% fully immunized children.
- Health education of the communities on immunization involves mass media and community dialogue. The latter has possibly contributed more to the sustained uptake of immunization services.
- Despite the increasing number of antigens used in EPI, the cold chain is reported to be adequate, with some extra space to accommodate vaccines for special campaigns.

### Recommendations for priority actions

- Conduct in-depth investigation of the causes of the declining trend of measles vaccination and address any identified causes to increase demand for immunization.
- Implement the plan to sustain the cold-chain system, and include within it provisions for regular cold chain maintenance, replacement of materials and addition of new technology as appropriate.
- Improve immunization data management, analysis and monitoring and use data to identify and intervene in areas where immunization coverage is declining.
- Include zoonoses and epidemic-prone diseases in the vaccination plan (in the long term).

### Indicators and scores

#### P.7.1 Vaccine coverage (measles) as part of national programme – Score 3

##### *Strengths/best practices*

- Zanzibar has had high reported vaccination coverage (above 80%) for all antigens though they are still falling short of their target of 90%.
- Measles coverage for 2015 and 2016 was 88% and 86% respectively.
- Data were not analysed to indicate the proportion of districts that have >80% coverage.

##### *Areas that need strengthening/challenges*

- Zanzibar should review and address the causes of the declining immunization coverage and work towards achieving and sustaining the target of 90%.
- The programme should also regularly analyse data by subnational levels to quickly identify areas that may be experiencing challenges and declining coverage.

#### P.7.2 National vaccine access and delivery– Score 3

##### *Strengths/best practices*

- The programme has a routine immunization network that reaches every part of Zanzibar.
- The cold chain is available in 96% of health facilities and 100% of districts.
- There are cold-chain technicians in districts to support maintenance of the cold chain as well as undertake any repairs.
- Zanzibar has conducted multiple measles immunization campaigns successfully.
- Ring-fencing the funding for procurement of the EPI vaccines and conducting data quality self-assessments regularly.

### *Areas that need strengthening/challenges*

- To fully meet the capacity requirements of this indicator, Zanzibar should strengthen vaccine forecasting and ensure timely procurement and distribution of vaccines to eliminate stock outs of some antigens, one of which was noted by external experts during the field visits of the JEE mission (due to this, Zanzibar could not be scored at 5).
- The programme should also ensure that the current plan to sustain the cold chain is implemented.
- Additional challenges include human resources for vaccination, especially in Pemba, and inadequate data management capacity, especially at lower levels.
- It was noted during the plenary that capacity for supporting immunization response for epidemic-prone diseases (e.g. yellow fever or meningococcal meningitis) needs strengthening.

# DETECT

## National laboratory system

### Introduction

Public health laboratories provide essential services including disease and outbreak detection, emergency response, environmental monitoring and disease surveillance. State and local public health laboratories can serve as a focal point for a national system, through their core functions for human, veterinary and food safety including disease prevention, control and surveillance; integrated data management; reference and specialized testing; laboratory oversight; emergency response; public health research; training and education; and partnerships and communication.

#### Target

*Real-time bio-surveillance with a national laboratory system and effective modern point-of-care and laboratory-based diagnostics.*

### Zanzibar's level of capabilities

Laboratory services are provided through medical/clinical and public health laboratories in Zanzibar; medical laboratory services are an integral part of health care provision and are generally attached to health care facilities. Overall, based on the Zanzibar Laboratory Situation Analysis Report 2009, there are 42 public and 72 private sector laboratories respectively. The pathology laboratory at the Mnazi Mmoja Referral Hospital (PLMMH) in Unguja is the most advanced laboratory facility available in Zanzibar; it can perform routine laboratory tests including microbiology, clinical chemistry, haematology, blood transfusion, parasitology and serology and molecular (PCR) testing for TB. Concurrently there are semi-specialized referral centres and research services, which include the laboratory component of vertical surveillance programs including the Zanzibar integrated HIV/TB and Leprosy Programme (ZIHTLP), Zanzibar Malaria Elimination Programme (ZAMEP), Zanzibar National Blood Transfusion Services (ZNBTS), etc. Public Health Laboratory Ivo de Carneri (PHL-IdC) on Pemba Island is a WHO collaborating centre for neglected tropical diseases. This facility currently performs bacteriology, parasitology, molecular testing for TB (endpoint PCR) and collaborates on a number of operational research projects. The laboratory also provides routine diagnostic support to the Pemba district hospital as well as diagnostic support during outbreaks such as the cholera outbreak in 2015/2016. PHL-IdC could be expanded to fully support infectious disease surveillance if adequate staff and funding support could be ensured on a continual basis. Most of the data management at PHL-IdC is paper based; though some data are stored electronically, there is no formal electronic dashboard or data-sharing platform available.

In the veterinary sector, there are three laboratories; a central animal health laboratory in Unguja (Veterinary Investigation Centre) participates in the Global Alliance for Rabies Control as well as an external quality assurance scheme for rabies with the University of Pretoria. It collaborates with the Food and Agriculture Organization of the United Nations (FAO) on developing diagnostic capacity for emerging pandemic threats and regularly shares rabies data on the Event Mobile Application (EMA) dashboard of FAO that is also shared with the director of animal health services. In addition, there are two small veterinary laboratories in Pemba (Wete and ChakeChake). However, all laboratories have basic infrastructure and equipment with BSI-1 testing capacity, limited test range and thus outbreak samples or those requiring confirmation are

referred to a reference laboratory on mainland United Republic of Tanzania for testing and/or confirmation. Other sectors include food testing laboratories that mainly perform nutritional and toxicology analysis, but which can do food composition and toxin analysis as well.

With regard to implementation of a laboratory quality management system (LQMS), PLMMH offers a few accredited tests (full blood count, TB, CD4, malaria). PHL-IdC, ZFDB and the Chief Government Chemist Laboratory Agency (CGCLA) are implementing QMS and they are in the process of becoming accredited. In both sectors, the number of available trained personnel in sample packaging and transportation (certified shippers); biosafety/biosecurity and quality assurance is limited.

It is essential to develop the capacities in other public health areas including AMR particularly and to provide diagnostic support for surveillance of infectious diseases. There is need to conduct situation and capacity assessments of laboratories in different sectors using the One Health approach. Review of the policy/regulation draft document that is currently being developed for Zanzibar is also needed, in order to ensure that the laboratory network and surveillance system being devised pertains to human, animal and agricultural sector laboratory facilities. In this regard, Zanzibar colleagues may be able to obtain guidance from available laboratory policy and strategic framework documents from mainland United Republic of Tanzania.

In addition, the NPHRL should join efforts with other reference laboratories at the Minister of Agriculture, Natural Resources, Livestock and Fisheries and Ministry of Commerce and Industry in order to support the activities related to emerging and re-emerging public health risks and IHR.

It was requested during the plenary that comments be appended to each of the indicators of this technical area after each score. See below for more details on Zanzibar's laboratory capacity.

## Recommendations for priority actions

- Review and implement the Zanzibar Laboratory policy using the One Health approach.
- Develop and implement a strategic plan that addresses specimen management, supply-chain management and QMS in all laboratories.
- Improve testing capacity for the Integrated Disease Surveillance and Response (IDSR) framework priority diseases in all sectors.

## Indicators and scores

### D.1.1 Laboratory testing for detection of priority diseases– Score 1

Laboratory capacity in the human health sector is more developed than in the veterinary sector, and includes microscopy, bacteriology, parasitology, serology and molecular testing. Programmes such as the Zanzibar Integrated HIV/TB Leprosy Programme and Zanzibar Malaria Elimination Programme are supported by external partners (e.g. the Global Fund), which provide infrastructure development and testing support, while the MoH provides human resources. In the veterinary sector laboratories, there is limited capacity (facility, equipment, reagents, etc.) to test for a number of IDSR priority diseases in Zanzibar particularly viral infections. In addition, there are significant challenges with equipment availability and maintenance at the laboratories. For example, the main veterinary facility does not have a biosafety cabinet for handling viral pathogens, and therefore refers them to mainland United Republic of Tanzania for testing and confirmation. Facilities in Zanzibar must be designated in both human and animal health sectors as reference facilities for diagnostic support and reporting of public health and zoonotic threats.

### Strengths/best practices

- Diagnostic units and a minimum laboratory infrastructure in human and animal health sectors, and food and chemical analysis are in place.

- There is advanced laboratory capacity, at least for some diseases, with modern equipment.
- Some draft documentation has been developed for laboratories including the National Laboratory Act, 2016 and the National Laboratory Policy, 2016.
- Laboratory guidelines and SOPs are available.

#### **Areas that need strengthening/challenges**

- There is a need to strengthen the capacity of laboratories performing public health testing in human and veterinary sectors for early diagnosis of public health and zoonotic threats.
- Zanzibar requires the designation/notification of reference public and veterinary laboratories with clear terms of reference.
- Trained staff is a challenge.
- Sustainable funding mechanisms are needed for those projects currently supported by donors/external partners.
- Equipment maintenance, repair and calibration are challenges.
- Supply-chain management needs to be strengthened; Zanzibar is currently dependent on donor support.
- There is a need for a well-linked multi-sectoral and tiered laboratory information system.

### **D.1.2 Specimen referral and transport system – Score 1**

#### **Strengths/best practices**

- A specimen transportation system exists with couriers available to transport samples from field sites to laboratories on both Pemba and Unguja and also to the mainland laboratories for confirmation.
- During outbreaks, samples in both the human and animal health sectors are also forwarded by district coordinating officers through field staff or courier.
- Laboratory personnel have basic knowledge on sample packing and transport for infectious substances.

#### **Areas that need strengthening/challenges**

- Development of a laboratory policy for human and animal sectors using the One Health approach is needed.
- Training of certified shippers needs to be increased in both human and animal health sector laboratories.
- A quality management system at all laboratories with special reference to sample management needs to be implemented.

### **D.1.3 Effective modern point-of-care and laboratory-based diagnostics – Score 1**

- Minimal laboratory diagnostic capacity exists within Zanzibar, but no tier-specific diagnostic testing strategies are documented.
- Point-of-care diagnostics are being used for priority diseases in Zanzibar.
- The comment about capacity disparity between human and veterinary sectors made under indicator D.1.1 applies to this indicator as well.

#### **Strengths/best practices**

- There is some donor funding that has provided support for procurement of laboratory equipment and consumables, and laboratory upgrades.

- IDSR specimen collection materials are procured and distributed to all districts mainly through donor-supported programmes.
- PHL-IdC and the Veterinary Investigation Centre provide diagnostic support for field surveillance activities in public and animal health sectors respectively.

#### **Areas that need strengthening/challenges**

- Development of testing capability for viral pathogens through molecular testing in the public health and animal sector laboratories needs to be strengthened.
- Development of infrastructure and procurement of requisite equipment and supplies is needed to expand the laboratory-based surveillance capacity for IDSR priority diseases using the One Health approach.

#### **D.1.4 Laboratory quality system– Score 1**

- The laboratory policy and strategic framework for Zanzibar must support the public health and veterinary laboratories in order to develop and implement the LQMS including accreditation of identified facilities as a medium-term goal.
- The comment about capacity disparity between human and veterinary sectors made under indicator D.1.1 applies to this indicator as well.

#### **Strengths/best practices**

- There is capacity for food, water and drug testing services to support public health.
- Implementation of Quality Management System (QMS) is already being done in some facilities
- At least two laboratories in human health and one veterinary laboratory participate actively in external quality assurance programmes on a regular basis.
- Some human sector laboratories have initiated the accreditation process

#### **Areas that need strengthening/challenges**

- A QMS is needed that includes external quality assurance (EQA) and biosafety/biosecurity procedures.
- A system of licensing is required of all (health and non-health) laboratories in the laboratory strategic framework.
- Implementation of LQMS and subsequent accreditation at identified laboratories is needed, which includes sustainable support.
- The national and zonal laboratory quality assurance system used on mainland United Republic of Tanzania should be used to support Zanzibar as well as other countries in the region, under the East African Public Health Laboratory Networking Project.

# Real-Time Surveillance

## Introduction

The purpose of real-time surveillance is to advance the safety, security, and resilience of the Nation by leading an integrated bio-surveillance effort that facilitates early warning and situational awareness of biological events.

### Target

*Strengthened foundational indicator- and event-based surveillance systems that are able to detect events of significance for public health, animal health and health security; improved communication and collaboration across sectors and between sub-national, national and international levels of authority regarding surveillance of events of public health significance; improved country and regional capacity to analyse and link data from and between strengthened, real-time surveillance systems, including interoperable, interconnected electronic reporting systems. This can include epidemiologic, clinical, laboratory, environmental testing, product safety and quality, and bioinformatics data; and advancement in fulfilling the core capacity requirements for surveillance in accordance with the IHR and the OIE standards.*

## Zanzibar's Level of Capabilities

Zanzibar adopted the Technical Guideline for Integrated Disease Surveillance and Response (IDSR) in October 2010, for establishing an Integrated Disease Surveillance Strategy.

The Zanzibar Epidemiology and Disease Surveillance (ZEDS) Unit was established in the 1980s, but became more functional from 2011 after the MoH separated it from the HMIS to become a standalone unit. Staff available for surveillance include:

- Unguja – 5 (epidemiologist, environment officer, ICT professional)
- Pemba – 2 (vector control officers).

Zanzibar has surveillance structures at various levels which are not optimal for early detection, reporting and response to suspected outbreaks and public health emergencies. The health workforce for surveillance is inadequate with limited capacity for IDSR. IDSR tools for data collection exist, and health workers at peripheral health facilities collect data and report to the district surveillance officer every week via SMS/ phone calls. At the intermediate/district health management team level, the surveillance officer receives reports from health facilities and forwards them to the epidemiological unit by SMS. Records of previous reports are not maintained at the district level and therefore there are minimal surveillance functions done by the district surveillance officer.

At national level, the data received by SMS is entered into the Infectious Disease Week Ending (IDWE). Weekly data sets are available however there is no national database that can be used to generate trends and monitor thresholds of priority diseases and events. There was no evidence of data analysis or evidence of a mechanism for verification/monitoring the quality of data at national, intermediate (district) and peripheral levels. The IDSR performance indicators of timeliness and completeness of weekly reporting are suboptimal (<50%). The huge number of (silent) public health facilities not reporting, lack of data analysis coupled with an inadequate coordination mechanism could easily jeopardize the safety, security and resilience of the entire nation.



## Recommendations for priority actions

- Train health workers on IDSR and basic epidemiological skills at all levels in order to build a critical mass of health workers with the necessary skills for surveillance and response.
- Strengthen the Surveillance coordination structures at national and district level with clear terms of reference.
- Develop and implement an electronic surveillance system (e-IDSR) for real-time surveillance.
- Strengthen the indicator-based surveillance system and develop an event-based surveillance system that includes a community-based surveillance component to complement the current surveillance system.
- Strengthen capacity for data analysis at all levels and institutionalize data quality assessment/audit.

## Indicators and scores

### D.2.1 Indicator and event based surveillance systems – Score 2

#### *Strengths/best practices*

- Zanzibar has IDSR guidelines in place.
- A list of priority diseases exists and has been disseminated.
- A system exists to collect data from health facilities, which is captured in the Infectious Disease Week Ending report at national level.

#### *Areas that need strengthening/challenges*

- Both indicator-based and event-based surveillance are still suboptimal, with below average performance indicators like weekly timeliness and completeness of reports.
- The role of the district surveillance officer is not well defined.
- The surveillance coordination structure needs to be strengthened and the ToR for epidemiologists/surveillance officers at various levels developed.
- Health workers need more training on IDSR to strengthen indicator-based and event-based surveillance.
- Community-based surveillance is not part of the current surveillance system; its addition would improve the sensitivity of the overall system.
- No feedback mechanism for surveillance exists, such as a weekly epidemiological bulletin.

### D.2.2 Inter-operable, interconnected, electronic real-time reporting system – Score 1

#### *Strengths/best practices*

- Malaria surveillance is conducted, using mobile phone technology for reporting.
- District Health Information Software (DHIS) 2 is present in all districts (web based).

#### *Areas that need strengthening/challenges*

- An electronic platform for real-time surveillance data reporting is needed. Once developed, the e-IDSR system should be linked with DHIS 2 for sustainability.

### D.2.3 Analysis of surveillance data – Score 1

#### *Strengths/best practices*

- Some human resources exist for surveillance at all levels.

### *Areas that need strengthening/challenges*

- There is weakness in data analysis at all levels. Strengthen data analysis at all levels through training of health workers.
- There are no mechanisms for data quality assessment/audit. Establish/institutionalize a data validation and quality assurance system.

## **D.2.4 Syndromic surveillance systems – Score 2**

### *Strengths/best practices*

- Syndromic surveillance does exist under the IDSR. This includes acute flaccid paralysis, acute diarrhoea and acute viral haemorrhagic fevers.

### *Areas that need strengthening/challenges*

- Syndromic surveillance system lacks capacity for influenza, of which there is a new subtype. Establish a sentinel surveillance system for influenza-like illness and severe acute respiratory illness. Create linkages with existing laboratories like Mnazi Mmoja Hospital to support confirmation of priority diseases.
- Timeliness and completeness of syndromic surveillance data is poor.

# Reporting

## Introduction

Health threats at the human–animal–ecosystem interface have increased over the past decades, as pathogens continue to evolve and adapt to new hosts and environments, imposing a burden on human and animal health systems. Collaborative multidisciplinary reporting on the health of humans, animals, and ecosystems reduces the risk of diseases at the interfaces between them.

### Target

*Timely and accurate disease reporting according to WHO requirements and consistent coordination with FAO and OIE.*

## Zanzibar level of capabilities

Evaluation for this technical area took into consideration that even though Zanzibar is a semi-autonomous territory of Tanzania, it is not considered as a standalone State Party on IHR (2005)/World Organisation for Animal Health (OIE) matters. For this reason scoring was not done for this technical area. Nevertheless, this report highlights specific areas that need strengthening within the already existing reporting system to WHO in the United Republic of Tanzania to enable efficient notification of events that may constitute a Public health emergency of international concern (PHEIC) and all other communication with WHO concerning the implementation of health measures under the IHR.

A National IHR Focal Point (NFP) exists and is operational in the United Republic of Tanzania. The five focal persons who constitute the NFP include an epidemiologist and laboratorian from the Ministry of Health United Republic of Tanzania mainland, an epidemiologist from Ministry of Health Zanzibar, a representative from the Tanzania Food & Drugs Authority and a representative from the Tanzania Ports Authority. An operational OIE delegate is also involved. Food safety issues are reported to the NFP, as the subject of food safety is represented in the office of the NFP in the United Republic of Tanzania.

Zanzibar has disease surveillance structures and systems for both public health and animal health in place although they are weak. There are no national protocols/SOPs detailing the procedures that govern reporting of potential PHEICs to WHO however the decision-making instrument in Annex 2 of the IHR (2005) is used by the NFP to decide whether a particular event fulfils criteria for notification.

## Recommendations for priority actions

- Develop a robust functional disease surveillance system in both human and animal health sectors to be able to detect and report potential PHEICs that may occur within Zanzibar.
- Strengthen linkages between Zanzibar and the IHR NFP on the mainland United Republic of Tanzania on IHR matters:
  - A representative from Zanzibar shall be part of the national IHR NFP;
  - Establish a National IHR Focal Point sub-centre in Zanzibar;
  - Build capacity of the Zanzibar NFP sub-centre with appropriate human resources, ICT capacity and training in IHR (2005);
  - Develop national SOPs/protocols and regulations that govern reporting to WHO that clearly specify the linkages between the NFP sub-centre in Zanzibar and the NFP on mainland United Republic of Tanzania.

- Establish a multi-sectoral IHR coordination committee to promote joint decision-making and timely reporting to the NFP in response to a potential PHEIC for relevant zoonotic diseases.
- Designate an OIE focal person in Zanzibar who will then link with the national OIE delegate in mainland United Republic of Tanzania to notify OIE on important epidemiological events occurring in Zanzibar.
- Establish formal mechanisms for communication and information sharing between human health, animal health, security authorities and other relevant sectors.

## Indicators and scores

### D.4.1. System for efficient reporting to WHO, FAO and OIE – Score<sup>1</sup> **NOT APPLICABLE**

#### *Strengths/best practices*

- The NFP for the United Republic of Tanzania exists and is operational.
- An OIE delegate is a part of the NFP structure.
- Food safety issues are reported to the NFP, as the subject of food safety is represented in the office of the NFP in the United Republic of Tanzania.

#### *Areas that need strengthening/challenges*

- There are weak linkages between Zanzibar and the NFP/OIE delegate.
- No formal mechanisms for exchange of information and collaboration between the NFP and OIE delegate exist.
- There is no multisectoral coordination on reporting of potential PHEICs to the NFP.
- There is a need to establish formal mechanisms for communication between relevant sectors.
- There is a need to train managers in all the relevant sectors regarding reporting requirements under IHR (2005).

### D.4.2. Reporting network and protocols in country – Score **NOT APPLICABLE**

#### *Strengths/best practices*

- The NFP uses the decision-making instrument in Annex 2 of IHR (2005) to decide whether a particular event fulfils criteria for notification.

#### *Areas that need strengthening/challenges*

- The existing surveillance systems in both the human and animal health sectors in Zanzibar are not robust enough to detect potential PHEICs.
- There are no protocols or regulations in Zanzibar that govern reporting to WHO.
- Conducting periodic simulation exercises to test the ability of the system to detect a potential PHEIC, reporting to the NFP and ultimately WHO/OIE should be considered; an initial exercise is currently being planned in Zanzibar.

<sup>1</sup> Zanzibar reports as a unit with the United Republic of Tanzania to OIE, FAO and WHO

# Workforce Development

## Introduction

Workforce development is important in order to develop a sustainable public health system over time by developing and maintaining the highly qualified public health workforce with appropriate technical training, scientific skills, and subject-matter expertise.

### Target

*State parties should have skilled and competent health personnel for sustainable and functional public health surveillance and response at all levels of the health system and the effective implementation of the IHR (2005). A workforce includes physicians, animal health or veterinarians, biostatisticians, laboratory scientists, farming/ livestock professionals, with an optimal target of one trained field epidemiologist (or equivalent) per 200,000 population, who can systematically cooperate to meet relevant IHR and PVS core competencies.*

## Zanzibar's level of capabilities

In general, the public health capacity in both human and animal health in Zanzibar is still below desired levels, mainly due to inadequate financing for trainings. The Zanzibar Health Service has a total of 4229 employees (unpublished human resource head count survey 2016/2017). At the national level, capacities on specialized cadres including epidemiologists, social scientists, specialized medical personnel and biostatisticians are present although inadequate. Specifically the human health sector has seven epidemiologists which translates to a ratio of one trained field epidemiologist per 215 000 population, however they are all situated at the national level<sup>2</sup>; therefore Zanzibar does not meet the optimal international target for trained field epidemiologists. The animal health sector has seven veterinarians, all at national level, and 172 para-veterinarians (116 diploma holders and 56 certificate holders) at subnational level and 174 private community health animal assistants. There is no trained epidemiologist in the animal health sector.

The United Republic of Tanzania established a Field Epidemiology Training Program (FETP) nine years ago (2008) in partnership with Muhimbili University of Allied Health Services, the United States Centers for Disease Control and Prevention and the African Field Epidemiology Network (AFENET). Initially the programme only offered advanced training in field epidemiology for human health experts with diverse backgrounds including but not limited to medical doctors, laboratorians and pharmacists. However in 2015 the programme introduced a tiered training approach and now also offers short-term frontline epidemiology courses for in-service mid-level managers that has taken into consideration the One Health approach and so includes both human and animal health experts. Since inception the programme has produced 100 and 77 graduates at advanced level and short-course frontline training respectively. Of those trained, Zanzibar has seven (7%) graduates from the advanced course and none (0%) from the frontline trainings.

The current FETP does not admit veterinarians for the advanced epidemiology course, however Sokoine University of Agriculture offers a similar training programme that is specifically for veterinarians. The Ministry of Agriculture, Livestock and Fisheries and Natural Resources could use this avenue to build the epidemiological capacity of the veterinarians in Zanzibar. In addition, within the human and animal health workforce there exists a small number of public health practitioners trained in other institutions/programs other than FETP.

<sup>2</sup> Within the MoH and hold key positions in various public health programmes including disease surveillance and response.

The Ministry of Health in Zanzibar has developed a draft Human Resource for Health Strategic Plan, 2013/14–2017/18. This plan focuses more on the clinical/medical services workforce with little mention on public health workforce and does not include community-level health workers who are very critical in detection of public health emergencies within the community. There is no human resources (HR) strategic plan in the animal health sector.

It was noted during the plenary that a draft workforce strategy exists, however it has not been finalized or disseminated, and is therefore not yet being implemented.

### Recommendations for priority actions

- Conduct a needs assessment to establish gaps in human resource capacity available in both animal and human sectors to implement IHR core capacity requirements.
- Develop and implement a comprehensive workforce strategy that takes into account both human and animal health HR needs.
- Build the epidemiological capacity of the human and animal health workforce to detect, investigate and respond to public health emergencies:
  - MoH Zanzibar should proactively lobby for the inclusion of a veterinary track in the advanced FETP and make special consideration for the veterinarians from Zanzibar who apply;
  - MoH, Ministry of Agriculture, Livestock and Fisheries and Natural Resources and partners should take the initiative to mobilize resources to support veterinarians to undertake the two-year epidemiology course at Sokoine University of Agriculture;
  - Develop and implement a plan in collaboration with the FETP spread over the next two years to train a substantial number of in-service mid-level managers from both the human and animal health workforce in the short-term FETP-frontline epidemiology course to rapidly build Zanzibar's capacity to detect and respond to public health emergencies.

### Indicators and scores

#### D.4.1 Human resources are available to implement IHR core capacity requirements – Score 2

##### *Strengths/best practices*

- Multidisciplinary HR capacity is available in Zanzibar for both human and animal health.
- A human resource information system (HRIS) exists.

##### *Areas that need strengthening/challenges*

- There is inadequate multidisciplinary HR capacity at subnational level. All epidemiologists and veterinarians are at national level.
- There are inadequate numbers (i.e. fall below the acceptable international standards) of human and animal health professionals in all health fields.
- There is negligible government and partner support for career development for in-service training in the animal health workforce (both long- and short-term trainings).
- There are funding constraints and limited career opportunities, which result in attrition of qualified public health professionals.
- There is a need to develop a career structure for epidemiologists.
- FETP graduates need proper placement and assignment of duties within the MoH in Zanzibar.

#### D.4.2 Applied epidemiology training programme in place such as FETP – Score 4

##### *Strengths/best practices*

- The United Republic of Tanzania has a well-established FETP with approximately 100 graduates, who have both clinical and laboratory backgrounds.
- FETP is offering since 2015 to date, in-service short-term epidemiology courses i.e. both basic and intermediate trainings to build epidemiological capacity for mid-level managers for both human and animal experts.
- Sokoine University of Agriculture offers a two-year advanced epidemiology training course for veterinarians.
- The MoH has been able to retain all seven FETP epidemiologist graduates (100% retention).

##### *Areas that need strengthening/challenges*

- Although the FETP exists, Zanzibar has not benefitted optimally from it. There is a need for capacity building.
- The advanced FETP only targets the human public health workforce and should consider incorporating veterinarians.
- The FETP is predominantly donor funded; there is a need for the government to invest in the programme to ensure it becomes sustainable.

#### D.4.3 Workforce strategy – Score 2

##### *Strengths/best practices*

- A draft Human Resource for Health Strategic Plan (2013/2014–2017/2018) exists.
- A draft Retention Strategic Plan for Health Care Workers (2016–2021) exists.

##### *Areas that need strengthening/challenges*

- There is a need to develop and implement a comprehensive workforce strategy that takes into account both human and animal health HR needs.
- There is a need to finalize, formalize, disseminate and implement the Retention Strategic Plan for Health Care Workers 2016–2021.

# RESPOND

## Preparedness

### Introduction

Preparedness includes the development and maintenance of national, intermediate and community/primary response level public health emergency response plans for relevant biological, chemical, radiological and nuclear hazards. Other components of preparedness include mapping of potential hazards, the identification and maintenances of available resources, including national stockpiles and the capacity to support operations at the intermediate and community/primary response levels during a public health emergency.

#### Target

*Development and maintenance of national, intermediate (district) and local/primary level public health emergency response plans for relevant biological, chemical, radiological and nuclear hazards. This covers mapping of potential hazards, identification and maintenance of available resources, including national stockpiles and the capacity to support operations at the intermediate and local/primary levels during a public health emergency.*

### Zanzibar's level of capabilities

The Zanzibar Disaster Management Commission is the main institution that deals with emergency preparedness in Zanzibar. The Commission deals with disasters broadly, but also includes health. Its main tasks include the following: coordinating all disaster preparedness response and relief operations; responsibility for oversight and coordination of disaster management activities; recommending the provision of funds for the purpose of disaster management; and mobilizing resources within and outside of Zanzibar for disaster management activities.

The Zanzibar Emergency Preparedness and Response Plan (ZEPRP) is a multi-hazard functional plan that outlines the appropriate actions to take in response to an emergency or major disaster including potential or imminent threats of any event. The purpose of the plan is to facilitate the coordination for the delivery of resources and services necessary to deal with the consequences of an emergency or major disaster.

There are also some plans in place for specific diseases, such as:

- Zanzibar Avian and Pandemic Influenza Preparedness and Contingency Plan
- Zanzibar Rift Valley Fever Preparedness and Contingency Plan
- Zanzibar Guideline for Prevention and Control of Cholera
- Zanzibar Integrated Disease Surveillance and Response.

ZEPRP has a section that covers health issues but neither the IHR core capacities nor PoE is covered. In order to develop a comprehensive structure for the preparedness at all levels, the ZEPRP needs to be updated to also address public health risks and emergencies using an all-hazard approach to meet IHR core capacities.

Zanzibar has not conducted a risk assessment to identify potential urgent public health events, nor has a mapping of national resources been done. In order to improve the preparedness for public health emergencies, both of these are important steps to take.



## Recommendations for priority actions

- Review and update the Zanzibar Emergency Preparedness and Response Plan (ZEPRP) to address public health risks and emergencies using an all-hazard approach to meet IHR core capacities; ensure that the update of ZEPRP also takes into account preparedness and response at regional and district levels.
- Conduct vulnerability/risk assessment and mapping of public health events and national resources.
- Raise awareness among the general public on the need to prepare for public health risks and emergencies.

## Indicators and scores

### R.1.1 National multi-hazard public health emergency preparedness and response plan developed and implemented– Score 1

#### *Strengths/best practices*

- The ZEPRP, which also covers some public health preparedness issues, provides a good foundation for preparedness work.
- Emergency preparedness and response committees with coordinating tasks are established at different levels.
- Key technical guidelines on topics such as malaria, cholera and pandemic influenza have been written.
- There is central-level coordination among all sectors.
- A simulation exercise of the ZEPRP has been conducted.

#### *Areas that need strengthening/challenges*

- ZEPRP needs to be reviewed and updated in order to address public health risks and emergencies using an all-hazard approach to meet IHR core capacities.
- Raising awareness and advocacy on the topic of preparedness among stakeholders needs to be strengthened.
- Inadequate knowledge of the ZEPRP in some of the sectors.

### R.1.2 Priority public health risks and resources mapped and utilized– Score 1

#### *Strengths/best practices*

- Political will of the Government is established.
- A specific budget line for the ZEPRP exists.
- Collaboration and cooperation with local and international partners has been established.
- A workforce from different institutions is available should the need arise.

#### *Areas that need strengthening/challenges*

- A national risk assessment to identify potential urgent public health events should be conducted.
- Mapping public health risks for Zanzibar has not been done.
- Mobilization of resources for the activities listed in the ZEPRP needs to be strengthened.

# Emergency response operations

## Introduction

A public health emergency operations centre is a central location for coordinating operational information and resources for strategic management of public health emergencies and emergency exercises. Emergency operations centres provide communication and information tools and services, and a management system during a response to an emergency or emergency exercise. They also provide other essential functions to support decision-making and implementation, coordination and collaboration.

### Target

*Country with public health emergency operations centre (EOC) functioning according to minimum common standards; maintaining trained, functioning, multi-sectoral rapid response teams and “real-time” bio-surveillance laboratory networks and information systems; as well as trained EOC staff capable of activating a coordinated emergency response within 120 minutes of the identification of a public health emergency.*

## Zanzibar’s Level of capabilities

Zanzibar has a disaster management commission established in accordance to the Disaster Risk Reduction and Management Act, No. 1 of 2015, which is managed by the Second Vice President’s Office – the Zanzibar Disaster Management Commission. The Commission is responsible for coordination of all disaster relief operations and preparedness, establishment of appropriate disaster management policies, regulations, plans, strategies and guidelines for ensuring timely and effective response to disasters as well as to strengthen the Government’s capacity to deal with disasters and emergencies. In the event of a disaster, the Commission mobilizes funds within and outside Zanzibar for the response. Zanzibar has established an emergency response fund though no funds have been allocated to it yet. A disaster management committee is in place and holds meetings regularly but there is a need to expand the membership of the committee to include additional relevant agencies. Zanzibar also has a multi-hazard disaster preparedness and response plan.

There is a mechanism for emergency response activation but no physical functional EOC currently in place. The disaster management EOC is in the formative stage of development; a physical structure has been identified but is not yet functional. The EOC is estimated to become operational by August 2017. Despite the gains made on the development of a disaster management EOC, there is currently no public health EOC in Zanzibar. Response to public health events is coordinated by the Director of Preventive Services in the MoH, working with a task force comprising mainly officers from MoH. However, the capacity to activate an effective response to public health events is not adequate. Although some staff have been trained on cholera preparedness and response, there is a lack of human resources for the management of public health emergencies. In addition, no SOPs are in place for management of the public health EOC and no mechanism for activation of an incident management system for response to public health emergencies.

It was requested during the plenary that comments be appended to each of the indicators of this technical area after each score. See below for more details on Zanzibar’s capacity for emergency response operations.

## Recommendations for priority actions

- Establish a fully equipped and functional disaster management EOC and public health EOC with a clear and robust linkage between the two.

- Develop SOPs for operating the EOCs.
- Provide training and mentorship to staff on the incident management system and EOC management.
- Provide specific training for staff on public health emergency response and the role of the public health EOC within that response.

## Indicators and scores

### R.2.1 Capacity to activate emergency operations – Score 1

The Executive Director of the Zanzibar Disaster Management Commission (and head of the Commission's Secretariat) ultimately decides which level a disaster falls under; levels 1 to 3, level 3 requiring an extensive coordinated response from all government departments (and the president declaring a state of emergency). The Executive Director of the Zanzibar Disaster Management Commission can activate the EOC and co-opt experts depending on the type of hazard. In case of an event, the EOC would operate from the Executive Director's office under the Second Vice President's Office. However, there is no clear definition of roles of staff in the EOC as no functional organogram is in place. Specific agencies are tasked to take the lead role on an ad hoc basis depending on the type of emergency that occurs.

Although there is a mechanism for activation of emergency response, there is no roster of emergency experts with roles and responsibilities defined. The Emergency Communication Center (ECC) is not fully functional and has no hot line for the general public to use in the event of an emergency.

It was noted during the plenary that there is management of incidents as mentioned above, but no dedicated EOC, which is what necessitated the score of 1 for this indicator.

#### Strengths/best practices

- The Zanzibar Disaster Management Plan, Zanzibar Disaster Risk Reduction Management Agency, Zanzibar Emergency Preparedness and Response Plan and Zanzibar Disaster Communication Center are established and provide coordination between stakeholders in disaster response.
- The presence of the Disaster Management Committee under the Second Vice President's Office enhances sectoral coordination in emergency response.
- Coordination of cholera outbreak and flood response in 2015/2016 at the district and Shehia level is considered a best practice.
- A task force for cholera and flood events in 2015/2016 was established.

#### Areas that need strengthening/challenges

- Capacity for disaster risk reduction staff, public health emergency response staff and other stakeholders on disaster management and public health emergencies needs to be strengthened.
- There is a need to address the issue of shortage of technical staff and stakeholders in public health emergencies.
- Funding for regular training sessions including simulation exercises on public health emergency operations is lacking.

### R.2.2 EOC operating procedures and plans– Score 1

Zanzibar has a disaster management EOC that is expected to address all hazards but is currently not fully functional and there are no specific SOPs for its operation. However, there is no public health EOC in place for management of public health emergencies. As a result, there is no specific incident management system in place, and incident managers have not been identified. The Emergency Communication Centre (ECC) is expected to manage information during disasters but it is currently not functional, as the communication equipment has been disconnected in the last four months due to relocation of the ECC.

**Strengths/best practices**

- An emergency preparedness and response plan for Zanzibar exists.
- The Zanzibar Disaster Management Commission uses high frequency and very high frequency radio communication in Unguja and Pemba islands.

**Areas that need strengthening/challenges**

- The identified physical structure for the EOC is not yet fully equipped nor are the staff sufficiently trained.
- There is no specific public health emergency EOC, and therefore no formal links between it and the disaster management EOC.
- There are an insufficient number of incident managers trained in managing public health emergencies.
- The Emergency Communication Center is not functional – it should be functional on a 24-hour basis with clear procedures for communication and information dissemination.

**R.2.3 Emergency operations programme – Score 2**

A table-top simulation exercise was conducted at the national and district level in 2014/2015. However, no additional simulation exercises have taken place since 2015 and there has been no functional simulation exercise. Zanzibar activated emergency response in 2016 for evacuation of flood victims but no response to a public health emergency has been activated in the past year. There is currently no functional EOC; disasters are managed from the office of the Executive Director of the Zanzibar Disaster Management Commission.

**Strengths/best practices**

- A table-top exercise was conducted at the national and district level.
- During the floods in 2015/2016, the district Emergency Preparedness and Response Plan was activated for the most vulnerable districts (Urban, West and North 'A' Unguja, Micheweni and Wete for Pemba).

**Areas that need strengthening/challenges**

- Table-top simulation exercises do not occur regularly, nor do functional simulation exercises with various stakeholders.
- Functionality of the disaster management EOC needs to be ensured, and the establishment of a public health EOC supported.
- Capacity of staff and requisite training on emergency operations needs to be increased.
- Specific funds need to be allocated for disaster management and public health emergencies.

**R.2.4 Case management procedures implemented for IHR relevant hazards– Score 2****Strengths/best practices**

- Case management guidelines for managing epidemic-prone diseases are available.
- Zanzibar also has the IDSR technical guideline, which contains case management guidelines for managing epidemic-prone diseases.
- Case management guidelines and a cholera response plan have been created.

**Areas that need strengthening/challenges**

- Although some staff have been trained in the management of cholera, staff trained in case management of IHR-related emergencies is lacking.

- Comprehensive training of staff in case management for all IHR-related emergencies is insufficient.
- There are no SOPs for transport of potentially ill patients, no mechanism for referral of such patients, and no designated ambulances that can be used for referral.
- Development of SOPs for transport of ill patients and availability of a dedicated ambulance for this purpose is lacking.
- There is inadequate HR for case management of IHR-related emergencies.
- Possible isolation centres for management of highly infectious patients have been identified, but no plans for equipping them exist.

# Linking Public Health and Security Authorities

## Introduction

Public health emergencies pose special challenges for law enforcement, whether the threat is manmade (e.g., the anthrax terrorist attacks) or naturally occurring (e.g. flu pandemics). In a public health emergency, law enforcement will need to quickly coordinate its response with public health and medical officials.

### Target

*In the event of a biological event of suspected or confirmed deliberate origin, a country will be able to conduct a rapid, multi-sectoral response, including the capacity to link public health and law enforcement, and to provide and/or request effective and timely international assistance, including to investigate alleged use events.*

## Zanzibar's Level of Capabilities

There are informal links between public health officials and security authorities at the points of entry (PoE) in response to emergencies and other epidemics. Security authorities promptly react to any event that poses danger to the public. Moreover, the National Security Council Act, No. 8 of 2010 provides a mechanism for security authorities to intervene for some public health threats. There is an ad hoc national committee at the Second Vice President's Office to coordinate the response to various public health security threats or emergencies. The committee includes security authorities such as: the police force, defence forces, immigration department, etc. In 2015, the Second Vice President's Office in collaboration with other security authorities did a simulation exercise on Ebola virus disease. Although biological events are rare in Zanzibar, the Tanzania People's Defence Force (TPDF) and the police force are always alert and ready to respond to any such event. However, there is no formally written Memorandum of Understanding (MoU) between the public health sector and security authorities. Under Zanzibar administrative arrangements, there is no need for a written requirement to develop such an MoU with security authorities. At PoE, port health officers work in close collaboration with security authorities in clearing conveyances, which includes animal and human health sectors. Further, the police force is empowered to cooperate with public health officers in enforcing the Public and Environmental Health Act, 2012, and there is an Interpol desk at police headquarters in Dar es Salaam (DSM). The deputy director of criminal investigation in Zanzibar can call for personnel from DSM in case of any need. There is always rapid response to such a call.

The legal framework, noted above, is not fully operational and the focal points within the different sectors have not been identified.

## Recommendations for Priority Actions

- Conduct joint training, drills and table-top simulation exercises involving all relevant stakeholders, such as: MoH, PoEs, security authorities, veterinary sector, etc. to test the functionality of systems to link public health and security agencies in response to a public health emergency.
- Develop and cost the priority activities for linking public health and security agencies in the national action plan for health security.
- Create a robust coordination mechanism in the incident management system, which includes:
  - identification or designation of relevant focal points of all relevant sectors;

- establishment of protocols and SOPs which stipulates the roles and responsibilities of the focal points.
- Establish an information sharing mechanism, between the relevant sectors.
- Include security authorities in all public health emergency preparedness and response actions.

## Indicators and Scores

### **R.3.1 Public Health and Security Authorities, (e.g. Law Enforcement, Border Control, Customs) are linked during a suspect or confirmed biological event – Score 1**

#### *Strengths/ Best Practices*

- There are strong linkages with Interpol for international criminal investigation.
- Availability of skilled personnel on biological and toxin weapons and the existence of the Plant Protection Act of 1997, which deals with inspection and quarantine of plants and pests.
- Security agencies are presently involved in the inspection of international conveyances and there is reliable surveillance by Tanzania People’s Defence Force on ballistics entering Zanzibar.
- Importantly, agricultural and animal health officers have been allocated to the two PoE that are in the process of being designated to meet the IHR requirements.

#### *Areas that need strengthening/challenges*

- Establish an Interpol desk at the office of the Commissioner of Police in Zanzibar.
- Develop protocols for collaboration between the Public Health Sector and Security Authorities.
- Establish and sustain a Zanzibar specific joint training curriculum to train public health and law enforcement entities on IHR, one health and joint investigations and response.
- In view of the inadequate skilled personnel in the investigation and response to biological and toxicological threats, there is a need for a deliberate effort to create this capacity in Zanzibar.
- Finally, a mechanism needs to be established for sharing regular information, reports, newsletters and bulletins between the public health sector and security authorities.

# Medical Countermeasures and Personnel Deployment

## Introduction

Medical Countermeasures (MCM) are vital to national security and protect nations from potentially catastrophic infectious disease threats. Investments in MCM create opportunities to improve overall public health. In addition, it is important to have trained personnel who can deploy in case of a public health emergency for response.

### Target

*A national framework for transferring (sending and receiving) medical countermeasures and public health and medical personnel among international partners during public health emergencies.*

## Zanzibar's Level of Capabilities

The Central Medical Stores (CMS) have the capacity to receive, store and distribute medical supplies and equipment to all districts in Zanzibar. The same logistics system can be used to receive and distribute medical countermeasures in times of emergency. There are several supportive guidelines including the guidelines for receiving drug donations, treatment guidelines, and guidelines for disposal of unwanted pharmaceuticals. The Zanzibar Essential Medicines List guides the procurement of medicines. The office of the chief pharmacist quantifies the needed medicines and supplies and procures them through the Procurement Management Unit, for CMS to receive, store and distribute. The MoH has contracts with several suppliers for medicines and supplies, and from whom additional medicines and supplies can be procured in case of emergency. However, there are no agreements in place with regional or international manufacturers or suppliers of specific medical countermeasures for response to public health emergencies. Furthermore, there are no legal provisions for procuring and distributing animal countermeasures. Zanzibar does not have in place a plan or SOPs for sending and receiving medical countermeasures during a public health emergency; there is no stockpile of medical countermeasures at national level; and there is no local capacity for production of antibiotics, vaccines, laboratory supplies and equipment.

There is no written plan or framework for receiving or sending medical personnel during public health emergencies. However, in practice, in non-emergency situations, qualifications and experience of medical personnel expected to come into Zanzibar are first reviewed to ensure that they match the islands' needs. This is expected to continue even in public health emergencies. Medical personnel that enter Zanzibar work alongside Zanzibari counterparts and are briefed at the site of deployment before they start work. There is no deployment plan for medical personnel during public health emergencies and no standard briefing packages for medical personnel coming into Zanzibar during public health emergencies.

General challenges include the following:

- inadequate funds for procurement of the medical countermeasures for public health emergencies;
- no list of priority medical countermeasures for stockpiling;
- quantification of required medicines and supplies does not put into consideration medical countermeasures that may be needed in case of emergencies.



## Recommended Priority Actions

- Develop a legal and regulatory framework and plans for receiving and sending health personnel and medical countermeasures during public health emergencies, including:
  - guidelines on licensure and supervision of international personnel received during public health emergencies, liability concerns for using health personnel during international deployment, a pre-deployment training package and criteria and standards for health personnel who will be received or sent during public health emergencies among others.
- Develop a list of priority essential emergency medical countermeasures needed on short notice for response to common public health emergencies in Zanzibar, based on a national risk profile.
- Establish a small stockpile for priority essential emergency supplies and medicines for public health emergency response and make prior contractual arrangements with suppliers/manufacturers that will enable Zanzibar to quickly get more essential supplies during public health emergencies.
- Conduct table-top simulation exercises to test Zanzibar's system of receiving and sending health personnel and medical countermeasures.

## Indicators and Scores

### R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency – Score 1

#### *Strengths/ Best Practices*

- Presence of guidelines for donations of medicines and medical supplies exists.
- Standard treatment guidelines for different conditions are available.
- There is a National Medicine Policy and a Zanzibar Essential Medicines List.
- Logistic system for distribution and tracking of medicines and related supplies is in place.

#### *Areas that need strengthening/challenges*

- Procedures/guidelines for procuring and distributing medical countermeasures during a public health emergency are required.
- There is a need to list priority medical countermeasures based on Zanzibar's risk profile and establish a reasonable stockpile of priority medical countermeasures for use during a public health emergency.
- There is a need to negotiate and sign agreements with manufacturers or suppliers for accessing/procurement of medical supplies including vaccines during public health emergencies.

### R.4.2 System is in place for sending and receiving health personnel during a public health emergency – Score 1

#### *Strengths/ Best Practices*

- While there is no system in place for sending and receiving health personnel during public health emergencies, the existing health professional councils including the Medical Council and the Zanzibar Nursing and Midwifery Council, could be used to develop and or oversee implementation of such a system.

#### *Areas that need strengthening/challenges*

- Zanzibar should develop a framework for receiving and sending medical personnel during public health emergencies as well as a deployment plan, including development of a briefing package before deployment.

- Zanzibar should consider conducting a table-top simulation exercise on sending and receiving medical countermeasures including medical personnel during public health emergencies.

# Risk communication

## Introduction

Risk communications should be a multilevel and multifaceted process which aims at helping stakeholders define risks, identify hazards, assess vulnerabilities and promote community resilience, thereby promoting the capacity to cope with an unfolding public health emergency. An essential part of risk communication is the dissemination of information to the public about health risks and events, such as disease outbreaks. For any communication about risk caused by a specific event to be effective, the social, religious, cultural, political and economic aspects associated with the event should be taken into account, including the voice of the affected population.

Communications of this kind promote the establishment of appropriate prevention and control action through community-based interventions at individual, family and community levels. Disseminating the information through appropriate channels is essential. Communication partners and stakeholders in the country need to be identified, and functional coordination and communication mechanisms should be established. In addition, the timely release of information and transparency in decision-making are essential for building trust between authorities, populations and partners. Emergency communications plans should be tested and updated as needed.

### Target

*State Parties use multilevel and multifaceted risk communication capacity. Real-time exchange of information, advice and opinions between experts and officials or people who face a threat or hazard (health or economic or social wellbeing) to their survival, so that informed decisions can be made to mitigate the effects of the threat or hazard and protective and preventive action can be taken. This includes a mix of communication and engagement strategies, such as media and social media communications, mass awareness campaigns, health promotion, social mobilization, stakeholder engagement and community engagement.*

## Zanzibar's level of capabilities

Zanzibar recognizes the importance of risk communication and has adopted the Zanzibar Disaster Communication Strategy to support the Zanzibar Emergency Preparedness and Response Plan for the purpose of effective risk communication during an emergency or major disaster. The Strategy outlines the organization, operational concepts, responsibilities and procedures to accomplish emergency communication requirements. It describes the process of providing reliable and effective communication among organizations participating in an emergency operation. However, the Strategy includes all kind of disasters and there is no specific organized communication structure for public health emergency operations.

In order to enhance the effectiveness of risk communication, Zanzibar has recently established an Emergency Communication Center (ECC), which will be located within the Emergency Operation Center (EOC) at the premises of the Zanzibar Disaster Management Commission. The public health risk communication system need not be physically linked to the EOC. It should, however, be operationally linked to the EOC in order to alert the EOC to public health events that might become emergencies. During emergencies, dispatch personnel assigned to the communications division will staff it on a 24-hour basis. However, the ECC is not yet fully operational due to the lack of a completely equipped physical structure and lack of skilled personnel on emergency operations. The lack of skilled personnel is one of the main challenges for the

further development of this capacity in Zanzibar. Another challenge is the lack of a dedicated budget for risk communications in emergencies.

Furthermore, Zanzibar needs to establish a public health risk communication system that includes all levels and that ensures a two-way communication with affected communities. This encompasses the ability to better address rumours and misinformation. Additionally, involvement of communities needs to be strengthened to include a functioning feedback loop between at-risk or affected populations and response agencies.

### Recommendations for priority actions

1. Develop a fully equipped physical structure for the Emergency Communication Center.
2. Train staff on the emergency communication system used in the ECC.
3. Establish a specific public health risk communication system that transmits two-way information between local, regional and national levels.

### Indicators and scores

#### R.5.1 Risk communication systems (plans, mechanisms, etc.)– Score 2

##### *Strengths/best practices*

- Presence of The Zanzibar Emergency Preparedness and Response Plan and the Zanzibar Disaster Communication Strategy are strengths.
- An Emergency Communication Centre is established.
- Zanzibar's experience on community awareness and outreach during the cholera outbreak 2015/2016 could be built upon.

##### *Areas that need strengthening/challenges*

- While the Emergency Communication Centre is established, it is lacking a fully equipped physical structure and is experiencing a shortage of trained personnel.
- There is a lack of skilled personnel in the area of emergency communications at all levels.
- The plan and structure with respect to public health communication needs to be better defined, especially at the community level.

#### R.5.2 Internal and partner communication and coordination– Score 3

##### *Strengths/best practices*

- District disaster management committees, district health management team and Shehia disaster management committees are established.
- Informal communication between sectors exists.
- Risk communication from lower level to higher level during the cholera outbreak 2015/2016 was strong, and is considered a best practice.

##### *Areas that need strengthening/challenges*

- Building capacity of the district disaster management department committees, district health management team and Shehia disaster management committees.
- Risk communication system lacks sufficient human and financial resources to operate effectively.

- Lack of personnel specifically trained in emergency/disaster communication, particularly of Shehia disaster management committees.

### **R.5.3 Public communication– Score 3**

#### *Strengths/best practices*

- A Public information officer is available in accordance with the Zanzibar Disaster Communication Strategy.
- Daily meetings are held between relevant stakeholders, including staff from the Department of Information. Topics discussed include (potential) events in all districts, how best to communicate with the public, including the release of factual information during emergencies.
- During and after the marine accident in 2012, false information about the event circulated in the media; this was quickly countered by public communication from the authorities, and is considered a best practice.

#### *Areas that need strengthening/challenges*

- Direct communication to disaster management committees and the district health management team from the community through hotlines is lacking.
- A challenge is the lack of a direct emergency information flow for public health issues from the community to the responsible emergency operation unit.

### **R.5.4 Communication engagement with affected communities– Score 2**

#### *Strengths/best practices*

- A Health Promotion Unit in the DPS and a health promotion focal person at the district level are in place.
- Use of Shehia health custodian committees is considered a best practice.

#### *Areas that need strengthening/challenges*

- Public awareness through public and private media needs to be developed.
- Public awareness on health emergency issues needs to be increased.
- There is a lack of risk assessments that address the most likely public health threats or reports on local at-risk populations.
- There is a need for a functioning feedback loop between at-risk or affected populations and response agencies.
- Training activities with relevant actors at all levels needs to be strengthened.

### **R.5.5 Dynamic listening and rumour management– Score 2**

#### *Strengths/best practices*

- A functional structure for rumour management at the national level exists.

#### *Areas that need strengthening/challenges*

- A routine- and event-based system for listening and rumour management covering national, regional and local levels is needed.
- There is no media response plan on how to manage rumours.

## OTHER

### Points of entry

#### Introduction

All core capacities and potential hazards apply to Points of entry and thus enable the effective application of health measures to prevent international spread of diseases. States Parties are required to maintain the core capacities at the designated international airports and ports (and where justified for public health reasons, a State Party may designate ground crossings) which will implement specific public health measures required to manage a variety of public health risks.

#### Target

*States Parties should designate and maintain the core capacities at the international airports and ports (and where justified for public health reasons, a State Party may designate ground crossings) which implement specific public health measures required to manage a variety of public health risks. Zanzibar Level of Capabilities*

#### Zanzibar's level of capabilities

Control of diseases at border crossings remains a fundamental element of the International Health Regulations. In addition to routine measures that must be in place at a point of entry (PoE), a number of IHR (2005) requirements for surveillance and response apply to designated airports and ports.

There are seven authorized points of entry in Unguja and Pemba islands. These entry points in Unguja include: Abeid Amani Karume International Airport (previously known as Kisauni airport), Malindi seaport and Mkokotoni seaport. The ports in Pemba are Pemba airport, Mkoani, Wete and Weshe seaports. The borders are very porous as there are quite a number of informal/unofficial points of entry. Two of the seven PoE are in the process of being designated to meet the IHR requirements. Though inadequate, all the official points of entry are staffed.

During the mission to Zanzibar the JEE Team visited two airports (Abeid Amani Karume International Airport and Pemba Airport) and three seaports (Wete and Mkoani in Pemba and Zanzibar seaport). Routine screening for yellow fever vaccination for travellers from endemic countries has gaps, as evidenced by some passengers from such countries not having been inspected during the mission. It was noted that the designated PoE were found to have inadequate patient referral systems with the nearest health facilities for provision of emergency medical and diagnostics services. Draft Aviation Public Health Emergency Plans are available but still need to be incorporated into the aerodromes' response plans. The Zanzibar Airports Authority, which manages the airports, has informal arrangements on ambulance services, but this is severely limited. The Zanzibar Airports Authority has also conducted some vector control activities at the airports. However, these activities do not adequately cover all the recommended areas including outside the perimeter fence of the airports. Some joint training with mainland United Republic of Tanzania has taken place on an ad hoc basis but the port staff in Zanzibar lack the necessary equipment to effectively and efficiently carry out their duties. A number of stakeholders including WHO, the Tourist Laboratory and port authorities support the PoE through development of operational guidelines, staff capacity building and procurement of medical facilities respectively.

## Recommendations for Priority Actions

- Establish a public health contingency plan for points of entry.
- Strengthen the patient referral system.
- Institute routine capacity building by improving the infrastructure and upgrading equipment.
- Conduct broad training sessions on disease surveillance, management and response.
- Conduct table-top simulation exercises to test the plans put in place.

## Indicators and Scores

### PoE.1 Routine capacities are established at PoE – Score 1

#### *Strengths/ Best Practices*

- Government as well as other stakeholders and partners are committed to implement IHR at PoEs.
- Trained staff on ship inspection and issuance of ship sanitation certificates are available.
- A draft port health operational guideline is available.

#### *Areas that need strengthening/challenges*

- Health care workers at PoE should receive regular updates on public health issues and be vaccinated against diseases such as yellow fever and hepatitis.
- Transport services for ill travellers are grossly inadequate and should be immediately strengthened.
- Vector control programme for PoE is insufficient (i.e. it does not cover the perimeters required by IHR).
- Holding centres at PoE for travellers suspected of being ill need to be built.

### PoE.2 Effective Public Health Response at Points of Entry – Score 1

#### *Strengths/Best Practices*

- Port emergency plans are available.
- A port emergency committee has been established and it meets regularly.

#### *Areas that need strengthening/challenges*

- Incorporate public health component in port emergency plans.
- National emergency plan to cooperate PHE occurring at PoE.
- Evaluation of effectiveness of PoE in responding to Public Health Events.

# Chemical Events

## Introduction

State parties should have surveillance and response capacity for chemical risk or events. It requires effective communication and collaboration among the sectors responsible for chemical safety, industries, transportation and safe disposal

### **Target**

*State parties should have surveillance and response capacity for chemical risk or events. It requires effective communication and collaboration among the sectors responsible for chemical safety, industries, transportation and safe disposal.*

## Zanzibar's Level of Capabilities

The Chief Government Chemist Laboratory Agency (CGCLA) is the government institution that has primary responsibility for chemicals management and control in Zanzibar. The Chief Government Chemist Laboratory was established in 1908, as a small laboratory under the Ministry of Health. In 1925 it was shifted to the Ministry of Agriculture but in 1994 the laboratory was shifted back to the Ministry of Health as an executive department. In 2011, it was officially recognized as an agency by the Establishment of the Chief Government Chemist Laboratory Act, No. 10 of 2011. The sporadic occurrence of chemical attacks (thrown acid) in Zanzibar led to the establishment of the industrial and consumer chemicals regulations in 2014.

The act and the regulations are a Zanzibar strength, establishing the basis for the current agency activity: to carry out forensic testing and toxicology; to analyse food, beverages, medicine, chemicals and chemical products; to conduct research on any subject related to its functions; to carry out inspections and sampling related to occupational health or environmental pollution; to manage, control and register industrial and consumer chemicals and chemical products; to carry out or coordinate DNA testing and maintain a DNA database; and to provide expert forensic opinion in Zanzibar as circumstances may require.

Overall chemical management and knowledge of the safe handling of chemicals is low in all sectors of Zanzibar, and there is a lack of sufficient knowledge on the effects of chemicals. Zanzibar has few factories, and few imported chemicals, but public exposure to chemicals is much higher due to Zanzibar's liberal self-employment policy. Many citizens in Zanzibar work under this policy, engaging in small-scale production of soaps, tile cleaners and similar substances. However these local entrepreneurs have little knowledge concerning chemicals and chemical handling. They produce the above-mentioned products in their homes without any protective equipment, alongside their families. Subsequently they dispose of the chemical waste into the sewage systems, further exposing themselves, their families, their community, animals and the environment as a whole. This creates an increased risk of small events. Increasing chemical hazard and chemical safety knowledge in all sectors is a clear area for strengthening.

The last chemical safety assessment done in Zanzibar in 2011 revealed a large quantity (2.5 metric tonnes) of expired acaricides and pesticides, but the scope of the risk assessment was limited. Regulation does not provide a strong framework for event surveillance and response, so CGCLA currently remains focused on the registration of chemicals, inspection of premises and persons dealing with chemicals, control of chemicals at PoE, and provision of permits for the importation and exportation of chemicals. Laboratory capacity for detection to drive response is limited by a lack of equipment and staff. The integration of the CGCLA into the emergency response plan and the development of a chemical component to an all-hazard response is therefore a critical area for strengthening.



## Recommendations for Priority Actions

- Review and develop necessary legislation, policy and plans to enable surveillance and response to chemical events and to further strengthen prevention.
- Develop or assemble guidelines, manuals and SOPs on surveillance, assessment and coordinated management (including information sharing) of chemical events; on chemical exposure/poisoning; and on safe waste disposal.
- Provide chemical hazard training to staff tasked with responding to chemical emergencies.
- Procure modern equipment, such as atomic absorption spectrometry (AAS), gas chromatography/mass spectrometry (GC/MS), High-performance liquid chromatography (HPLC) and sufficient trained staff for laboratories to perform the necessary testing and monitoring.
- Establish a poison control centre to maintain the knowledge base of chemicals and their health impact to direct an appropriate response.

## Indicators and Scores

### CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies – Score 1

Zanzibar has a number of strengths in the area of chemicals that are not reflected by a score of 1, among them legislation and a chemical safety assessment mentioned above. After a detailed discussion, it was decided to score indicator CE.2 as 1 rather than 2, with the understanding that accomplishing the first priority action listed above would move the islands to a score of 2.

## Strengths/Best Practices

- The Establishment of the Chief Government Chemist Laboratory Act, No. 10 of 2011 and the subsequent creation of Industrial and consumer chemicals regulations, 2014 provides the basis for fundamental monitoring activities of chemicals, which is ongoing.
- The registration of chemicals, premises and persons dealing with chemicals, control of chemical movement at entry points, and the inspection of premises harbouring chemicals creates a strong first step towards surveillance.
- A nascent ability to analyse chemicals and chemical products may create some needed skills, and should be strengthened.

## Areas that need strengthening/challenges

- Lack of a chemical emergency response plan supported by guidelines and manuals on the surveillance, assessment and management of chemical events, on intoxication and on poisoning creates a critical gap in preparedness mechanisms in Zanzibar.
- Coordination and collaboration among government institutions and stakeholders is a challenge, so a coordination platform that includes all stakeholders of chemicals from the local to national level will be important.
- Capacity building of staff at all levels is needed, including training, strengthening laboratory capacity to ensure systematic analysis, and a sustainable funding mechanism to purchase modern equipment and other necessary materials.
- Zanzibar does not have a poison control centre to house the knowledge base necessary to determine the health impact of various chemicals in order to define appropriate responses.

## CE.2 Enabling environment is in place for management of chemical Events – Score 1

### *Strengths/Best Practices*

- The industrial and consumer chemicals regulations, 2014 establishes the legal basis for current programmes for the registration of chemicals used in industries and households in Zanzibar.
- Inspection at PoE and premises harbouring chemicals promotes proper use and management of chemicals, and importation permits reinforce the oversight role of CGCLA.
- Efforts are being made to raise awareness of chemical safety by promoting safe-use of chemicals and chemical products during inspections.

### *Areas that need strengthening/challenges*

- There needs to be a review of existing laws and regulation to identify gaps in the authority to detect and manage chemical events.
- The legal basis for response needs to be strengthened through the development of a public health plan for chemical incidents/emergencies, compilation of guidelines and SOPs and the creation of a national coordinating body/committee with regard to chemical safety.
- The establishment of a National Chemicals Management Profile, a chemical accident prevention programme, effective management of disposal of expired chemicals and treatment of waste, and mass education and awareness on chemical hazards are needed to strengthen prevention.
- Adequate reporting, investigation and documentation are current challenges at CGCLA, which lacks the funding, equipment and staffing resources to build capacity based on a surveillance plan and also lacks an electronic chemical inventory management system.

# Radiation Emergencies

## Introduction

State parties should have surveillance and response capacity for radio-nuclear hazards/events/emergencies. It requires effective communication and collaboration among the sectors responsible for radio-nuclear management.

### Target

*State parties should have surveillance and response capacity for radio-nuclear hazards/events/emergencies. It requires effective communication and collaboration among the sectors responsible for radio-nuclear management.*

## Zanzibar's Level of Capabilities

Laws and regulations governing radiation emergencies are in place, including: the Atomic Energy Act No. 7 of 2003, which repealed the Protection from Radiation Act, No. 5 of 1983; the radioactive waste management for the protection of human health and the environment regulations, 1999; the Atomic energy (protection from ionizing radiation) regulations, 2004. Legislation and regulations require all practices involving radiation emergencies to be handled by the Tanzania Atomic Energy Commission (TAEC). TAEC has two technical directorates (Radiation Control and Nuclear Technology), one support directorate (Finance and Administration) and two units under the Director General's Office (Legal Unit and Internal Audit). There are also zonal offices (Branch Offices) in Zanzibar and Dar es Salaam, which report to the Director of Radiation Control. There is a TAEC Zanzibar office, which was opened on 11 June 2012 at the Vice President's Office in the United Republic of Tanzania building (Tunguu). Presently, the TAEC office is located within the Tanzania Commission for Science and Technology (COSTECH) office. TAEC has only two technical staff and one accounting officer.

The TAEC has clearly stated objectives, namely: to control the use of ionizing and non-ionizing radiation sources and to promote and regulate the safe and peaceful use of atomic energy and nuclear technology in the United Republic of Tanzania, as well as promote and expand the contribution of atomic energy and nuclear technology to health and prosperity throughout the United Republic of Tanzania. Key activities of TAEC include: provision of radiological assistance to assure the protection of persons, environment and property; facilitate in liaison with national, regional and other local organizations, radiological emergency response operations; conduct radiation safety inspection in hospitals, industries, and other nuclear installations to ensure the safe use of radiation devices; provide radio-analytical services and radioactive waste management; provide dosimetry and calibration services. For example, thermoluminescent dosimeters are used to monitor doses to radiation workers countrywide, which are regularly evaluated by the Commission in order to assess radiation exposures of workers. All ionizing radiation measuring equipment is calibrated by the TAEC at its headquarters; finally encourage development of local capabilities to cope up with radiological incidents, and keep records of such incidence, actions taken and final results.

The Atomic Energy Act, No. 7 of 2003 established TAEC, and comes under the United Republic of Tanzania law; its associated regulations are applicable in mainland United Republic of Tanzania and Zanzibar. TAEC has a primary responsibility for radiation surveillance; monitoring of consumer products (foodstuff); and risk assessment in radio nuclear surveillance/monitoring, which is mostly for mainland United Republic of Tanzania but may be extrapolated to Zanzibar (it was noted during the plenary however that no such risk

assessment had been conducted to date in Zanzibar). There is minimal laboratory capacity for screening foodstuffs for radioactivity.

## Recommendations for Priority Actions

- Review and amend the Atomic Energy Act, No. 7 of 2003 of the United Republic of Tanzania to include linkages between the TAEC and food safety agencies on mainland United Republic of Tanzania and Zanzibar to manage and regulate radioactivity in food, cosmetics and drugs.
- Review the national radiation plan for the United Republic of Tanzania to reflect linkages within the mainland and Zanzibar.
- Establish a coordination mechanism that includes stakeholders at all relevant sectors, such as PoE, MoH, Ministry of Agriculture, Livestock and Fisheries and Natural Resources, etc.
- Provide adequate human resources, equipment and other resources for detection of radiation emergencies.
- Designate two health facilities (one in Pemba and the other in Unguja) to handle radiation emergencies and scale up their capacity in terms of human resources, facilities and equipment to make them fit for purpose to manage radiation emergencies.

## Indicators and Scores

### RE.1 Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies – Score 1

#### *Strengths/ Best Practices*

- There are existing regulations, such as Atomic Energy (Protection from Ionizing Radiation) regulations.
- There is monitoring of foodstuffs for radioactivity at official entry/exit points and dosimetry services and inspection at centres containing radiation-emitting devices.

#### *Areas that need strengthening/challenges*

- Review and amend national legislation, policies, strategies and plans for detection, assessment and response to radiation emergencies to reflect the critical needs of Zanzibar.
- There is also a need for access to laboratory capacity for systematic analysis in Zanzibar, including strengthened capacity to transfer radioactive material to the designated waste disposal site on mainland United Republic of Tanzania.
- There is an urgent need for health care facilities that can manage radiation emergencies on the Islands.
- There is a need to install a radiation monitor at all designated PoE in Zanzibar.
- Moreover, additional funds, human resources and a better coordination mechanism between sectors are urgently needed.
- Zanzibar needs resources and expertise to transfer highly-active radioactive material that is no longer in use from its point of use to a central storage facility.
- There is a need for relevant materials and resources, such as radiological assessors, qualified doctors, medical supplies, protective equipment, warning signs and adequate means of transport.

### RE.2 Enabling environment is in place for management of Radiation Emergencies – Score 1

#### *Strengths/ Best Practices*

- Availability of the Atomic Energy Act, No. 7 of 2003 and associated regulations is a strength

- Availability of the Zanzibar Disaster Management Commission. T
- There is an inspection programme at health centres and hospitals, road construction facilities as well as foodstuff monitoring at exit/entry points, including: dosimetry services for all radiation workers.
- In addition there is an inventory of used and disused radiation sources, and Zanzibar can perform some limited radiation activities.

#### ***Areas that need strengthening/challenges***

- Develop a strategic plan for radiological emergency preparedness and response.
- Empower the TAEC Zanzibar office with respect to radiation and nuclear events.
- Review the national emergency and response plan for radiological events to take into account the situation in Zanzibar.
- Establish a multisectoral coordination mechanism regarding radiation safety. The available programs do not include Zanzibar because they are predominantly for mainland United Republic of Tanzania in terms of office facilities, equipment and human resources.
- The national emergency and response plan for radiological events at present only reflects the mainland.
- The regulations for the Zanzibar Disaster Management Commission do not cover the TAEC regarding to radiation emergencies, and the collaboration between the two commissions needs to be improved.

# Appendix 1: Joint External Evaluation Background

## Mission Place and Dates

Zanzibar, 24<sup>th</sup> to 28<sup>th</sup> April 2017

Pemba, 27<sup>th</sup> April 2017

## Mission Team Members:

- Sam Okuthe, Kenya, Food and Agriculture Organisation (Team Lead)
- Ambrose Talisuna, Uganda, World Health Organisation, AFRO (Team Co-Lead)
- Lyndah Makayotto, Kenya, Ministry of Health (Team Member)
- Fasina Folorunso, Kenya, Food and Agriculture Organisation - ECTAD (Team Member)
- Sofonias Asrat, Ethiopia, World Health Organisation (Team Member)
- Charles Njuguna, Sierra Leone, World Health Organisation (Team Member)
- Annika Elmgart, Netherlands, Ministry of Health (Team Member)
- Uzmar Amir, Pakistan, Ministry of Health (Team Member)
- Mary Steven, World Health Organisation – WCO (Team Member)
- Miriam Nanyunja, World Health Organisation – WCO (Team Member)
- Daniel Duvall, Nigeria, Centre for Disease Control and Prevention of the United States (Team Member)
- Kai Theodor Lashley (Writing Editor)

## Objective

To assess Zanzibar's capacities and capabilities relevant for the 19 technical areas of the JEE tool in order to provide baseline data to support Zanzibar's efforts to reform and improve their public health security.

## The JEE Process:

The Joint External Evaluation process is a peer to peer review. As such, it is a collaborative effort between host country experts and External Evaluation Team members. The entire external evaluation, including discussions around the scores, the strengths, the areas which need strengthening, best practices, challenges and the priority actions should be collaborative, with external evaluation team members and host country experts seeking full agreement on all aspects of the final report findings and recommendations.

Should there be significant and irreconcilable disagreement between the external team members and the host country experts or among the external or among the host country experts, the External Evaluation Team Lead will decide the outcome; this will be noted in the Final Report along with the justification for each party's position.

## Preparation and Implementation of the Mission

Prior to the visit consultations was done with the World Health Organization Regional Office in Africa (AFRO) to review the agenda, responsibilities, and logistics.

## Limitations and Assumptions

- The evaluation was limited to one week's time which limited the amount and depth of information which could be managed.
- It is assumed that the results of this evaluation will be made publically available.
- The evaluation is not an audit and information provided by Zanzibar will not be independently verified. Information provided by Zanzibar will be discussed and evaluation rating will be mutually agreed to by Zanzibar and evaluation team. This is a peer to peer review.

## Key Host Country Participants and Institutions

Zanzibar Lead Representative:

- Dr. Fadhil M. Abdalla, Director Preventive Services

## Participating Institutions

- Ministry of Health
- Health promotion Unit
- Zanzibar Food and Drug Board
- Ministry of Agriculture Natural Resources and Fisheries
- Department of Immigration
- Attorney General's office
- Zanzibar police
- Tanzania Atomic Energy Commission – Zanzibar
- Ministry of Foreign Affairs
- Zanzibar Port Authority
- Mnazi Mmoja Hospital
- Ministry of Finance
- Zanzibar Red Cross
- Zanzibar Weather Authorities
- Zanzibar Port Health
- Department of Environment
- Zenji Charitable Organisation (NGO)
- Department of Fisheries
- Zanzibar Revenue Board
- Commission of Tourism
- Ministry of Transport and Communication

## Supporting Documentation Provided by Host Country

### National Legislation, Policy and Financing

- International Health Regulations (2005)
- Disaster Management Act, No. 2 of 2003 – <http://extwprlegs1.fao.org/docs/pdf/tan142844.pdf>, accessed 2 May 2017
- Zanzibar Disaster Risk Reduction and Management Act, No. 1 of 2015 – [http://zanzibarassembly.go.tz/act\\_2015/act\\_1.pdf](http://zanzibarassembly.go.tz/act_2015/act_1.pdf), accessed 5 May 2017
- Public Finance Act, No. 12 of 2005 – [http://www.zanzibarassembly.go.tz/act\\_2005/act\\_12.pdf](http://www.zanzibarassembly.go.tz/act_2005/act_12.pdf), accessed 2 May 2017
- Public and Environmental Health Act, No. 11 of 2012 – <http://www.tobaccocontrollaws.org/files/live/Zanzibar/Zanzibar%20-%20Public%20%26%20Env.%20Health%20Act%2C%202012%20-%20national.pdf>, accessed 2 May 2017
- Plant Protection Act, 1997 – [http://zanzibarassembly.go.tz/act\\_1997/act\\_9.pdf](http://zanzibarassembly.go.tz/act_1997/act_9.pdf), accessed 2 May 2017
- National Security Council Act, No. 8 of 2010 – <http://parliament.go.tz/polis/uploads/bills/acts/1452071810-ActNo-8-2010.pdf>, accessed 2 May 2017
- Regional Administration Authority Act, No. 8 of 2014 – [http://www.zanzibarassembly.go.tz/act\\_2014/act\\_8.pdf](http://www.zanzibarassembly.go.tz/act_2014/act_8.pdf), accessed 2 May 2017
- National Health Policy of 2010
- Zanzibar Disaster Management Policy, 2011
- Zanzibar Health Sector Strategic Plan III 2013/2014–2018/2019
- Quarantine Rule, Cap. 74.
- Zanzibar Environmental Management Act, No. 3 of 2015 – [http://zanzibarassembly.go.tz/act\\_2015/act\\_3.pdf](http://zanzibarassembly.go.tz/act_2015/act_3.pdf), accessed 5 May 2017

### IHR Coordination, Communication and Advocacy

- IHR (2005)

### Antimicrobial Resistance

- Performance Standards for Antimicrobial Susceptibility Testing – CLSI, Guideline, 2017
- Zanzibar Standard Treatment Guideline, 2010
- Zanzibar Essential Medicines List
- Standard operating procedures for testing procedures of AMR detection.
- Global antimicrobial resistance surveillance system: manual for early implementation. Geneva: World Health Organization; 2015 (<http://www.who.int/antimicrobial-resistance/publications/surveillance-system-manual/en/>, accessed 1 May 2017)
- AMR surveillance in low- and middle-income settings – a roadmap for participation in the Global Antimicrobial Surveillance System (GLASS). London: London School of Hygiene & Tropical Medicine; 2016 (<http://amr.lshtm.ac.uk/wp-content/uploads/sites/12/2016/11/AMR-Surveillance-Protocol.pdf>, accessed 2 May 2017)



## Zoonotic disease

- Livestock Policy
- National Avian and Pandemic Influenza Emergency Preparedness and Response Plan, 2011
- Zanzibar Rift Valley Fever Emergency Preparedness and Response Plan, 2010

## Food safety

Safety Manual, Pathology Laboratory Mnazi Mmoja Referral Hospital, 2014 (unsigned copy)

## Immunization

- Immunization policy
- Health sector annual report and immunization joint reporting form
- Report of last EPI review
- EPI comprehensive multi-year plan
- Immunization in practice
- Integrated measles campaign field guide, 2008
- Zanzibar immunization service guideline 2014
- Measles rubella vaccine introduction guideline 2014. The United Republic of Tanzania Immunization and Vaccine Development Program; 2014 ([http://pdf.usaid.gov/pdf\\_docs/PA00JVRK.pdf](http://pdf.usaid.gov/pdf_docs/PA00JVRK.pdf), accessed 4 May 2017)
- Zanzibar health sector strategic plan III
- Zanzibar health policy
- Zanzibar integrated measles rubella campaign, October 2014

## National Laboratory System

- Medical Laboratory Act, September 2016 (draft)
- Medical Laboratory Policy, September 2016 (draft)
- Zanzibar Laboratory Strategic Plan 2012/2017 (draft)
- Essential Health Care Package, 2010
- Zanzibar Foods Drugs and Cosmetics Act, No. 2 of 2006
- Technical guidelines for integrated disease surveillance and response in the African region. Atlanta (GA): Centers for Disease Control and Prevention/World Health Organization; 2010 ([https://www.cdc.gov/globalhealth/healthprotection/idsr/pdf/technicalguidelines/idsr-technical-guidelines-2nd-edition\\_2010\\_english.pdf](https://www.cdc.gov/globalhealth/healthprotection/idsr/pdf/technicalguidelines/idsr-technical-guidelines-2nd-edition_2010_english.pdf), accessed 4 May 2017)
- Animal Resources Management Act, No. 11 of 1999
- Livestock Policy, 2011
- Zanzibar Laboratory Situation Analysis Report, 2009
- National Laboratory Act, 2016
- National Laboratory Policy, 2016

### Real time surveillance

- Technical guidelines for integrated disease surveillance and response in the African region. Atlanta (GA): Centers for Disease Control and Prevention/World Health Organization; 2010 ([https://www.cdc.gov/globalhealth/healthprotection/idsr/pdf/technicalguidelines/idsr-technical-guidelines-2nd-edition\\_2010\\_english.pdf](https://www.cdc.gov/globalhealth/healthprotection/idsr/pdf/technicalguidelines/idsr-technical-guidelines-2nd-edition_2010_english.pdf), accessed 4 May 2017)
- Public and Environmental Health Act, No. 11 of 2012

### Reporting

- Zanzibar Integrated Disease Surveillance and Response Guideline

### Workforce development

- Human Resource for Health Five-Year Strategic Plan, 2012/2013–2017/2018 (draft)
- Retention Strategic Plan for Health Care Workers, 2016–2021 (draft)

### Preparedness

- Monitoring and Evaluation for Disaster Risk Reduction
- Zanzibar Emergency Preparedness and Response Plan (2011)
- Zanzibar Avian and Pandemic Influenza Preparedness and Contingency Plan (2010)
- Zanzibar Rift Valley Fever Preparedness and Contingency Plan (2011)
- Zanzibar Guideline for Prevention and Control of Cholera (2016)
- Zanzibar Integrated Disease Surveillance and Response (2010)

### Medical countermeasures and Personnel Deployment

- Zanzibar Treatment Guidelines
- Zanzibar Essential Medicines List
- Zanzibar Donation Guidelines

### Linking Public Health and Security Measures

- Zanzibar Capacity Needs Assessment, 2008)
- Public and Environmental Health Act, No. 11 of 2012
- National Security Council Act, No. 8 of 2010
- Immigration Act, Cap.54 (R.E.2002), as Amended by Act No. 8 of 2015
- Section 3 of Police Force Ordinance, Cap.322 of the Law of Tanzania Police general orders

### Risk communication

- Zanzibar Disaster Emergency and Preparedness and Response Plan (2011)
- Zanzibar Disaster Communication Strategy (2011)

## Points of entry

- International Health Regulation (2005)
- Public and Environmental Health Act, No. 11 of 2012
- Handbook for ship inspection and Issuance of ship sanitation certificates
- Handbook for hygiene and sanitation in aviation
- Port health operational guideline, 2017 (draft)
- Aerodrome Manual for Zanzibar International Airport, 2012

## Chemical emergencies

- Establishment of the Chief Government Chemist Laboratory Act, No. 10 of 2011
- Industrial and consumer chemicals regulations, 2014
- Zanzibar environmental policy, 2013 – [https://www.google.nl/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwiA-tP7rtnTAhUHLVAKHXZIBpYQFggjMAA&url=http%3A%2F%2Fwww.estis.net%2Fincludes%2Ffile.asp%3Fsite%3Dcien-tanza%26file%3D9BFC0676-90E9-4A31-BA19-04ACFC7B806D&usg=AFQjCNF9ukRdd5p3YTauKEondHZQbTk65g&sig2=F1\\_mCKEaF-NbHuQMnWSN2Aj](https://www.google.nl/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwiA-tP7rtnTAhUHLVAKHXZIBpYQFggjMAA&url=http%3A%2F%2Fwww.estis.net%2Fincludes%2Ffile.asp%3Fsite%3Dcien-tanza%26file%3D9BFC0676-90E9-4A31-BA19-04ACFC7B806D&usg=AFQjCNF9ukRdd5p3YTauKEondHZQbTk65g&sig2=F1_mCKEaF-NbHuQMnWSN2Aj), accessed 5 May 2017

## Radiation

- Atomic Energy Act, No. 7 of 2003
- The Atomic Energy (Protection from Ionizing Radiation) Regulations (2004)
- The Atomic Energy (Parking and transport of radioactive Material) Regulations (2011)
- National Nuclear and Radiological Emergency Response Plan (2014)
- Radiological Emergency Response Program. Arusha: Tanzania Atomic Energy Commission; 2012
- Strategic Action Plan 2006–2011. Tanzania Atomic Energy Commission
- Strategic Action Plan 2016–2017. Tanzania Atomic Energy Commission
- Generic procedures for assessment and response during a radiological emergency. Vienna: International Atomic Energy Agency; 2000.

