STATE OF ERITREA

MINISTRY OF HEALTH

NATIONAL ACTION PLAN FOR HEALTH SECURITY (NAPHS), 2017-2021

June 2017

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ACCRONYMS/ ABBREVIATIONS

AAR----------After Action Review
ACHS----------Asmara College of Health Science
ADG---------- Acting Director General
AEFI---------- Adverse Event Following Immunization
AFRO----------Africa Regional Office
AMR---------- Anti Microbial Resistance
DG---------- Director General
DHS ---------- Demographic Health Survey
DPC---------- Disease Prevention and Control
DPT---------- District Prioritization Tool
DQA----------Data Quality Audit
EAT---------- External Assessment Team
EDF---------- Eritrean Defense Force
EHU---------- Environmental Health Unit
EOC---------- Emergency Operating Center
EOC---------- Emergency operating Center
EPI ----------Expanded Program of Immunization
EPR----------Epidemic Preparedness and Response
ERCAA----------Eritrean Civil Aviation Agency
ESI----------Eritrean Standard Institution
EU---------- European Union
FAO---------- -- Food and Agriculture Organization
FELTP---------- Veterinary Field Epidemiology laboratory Training Program
FETP----------Veterinary Field Epidemiology Training Program
FGM---------- Female Genital Mutilation
HAC----------Hamelmalo Agriculture Collage
HCAI---------- Health Care Associated Infection
HCW---------- Health Care Worker
HIV----------Human Immune Virus
HMIS----------Health Management Information System
HQ----------Head Quarter
HRD----------Human Resource Development
HRH---------- Human Resource for Health
HS---------- Health System
HSSDP II ---------- Health Sectors Strategic Development Plan - Second
HWF----------Health Work Force
ICT---------- Information and Communication Technology
IDSR----------Integrated Disease Surveillance and Response
IHR (2005) ---------- International Health Regulation 2005
IMR----------Infant Mortality Rate

IMS---------- Information Management System
JEE---------- Joint External Evaluation
LB ---------- Live Births
MCG----------Multisectoral Coordinating Group
MCM---------- Medical Counter Measures
MDG---------- Millennium Development Goal
MOFA---------- Ministry of Foreign Affaires
MLWE---------- Ministry of Land Water and Environment
MMR ---------- Maternal Mortality Rate
MMR---------- Ministry of Marine Resources
MOA---------- Ministry Of Agriculture
MOE---------- Ministry of Education
MOF----------Ministry of Finance
MOFA----------Ministry of Foreign Affaires
MOH---------- Ministry of Health
MOI----------Ministry of Information
MOLG---------- Ministry of Local Government
MOTC ----------Ministry of Transportation and Communications
MOTI----------Ministry of Trade and Industry
NAPHS----------National Action Plan for Health Security
NBTC----------National Blood Transfusion Center
NBTS---------- National Blood Transfusion Services
NEPRTC ---------- National Epidemic Preparedness and Response Committee
NFP----------National Focal Point
NHL---------- National Health Laboratory
NMFA---------- National Medicines and Food Administration
NPO----------National Program Officer
NSA---------- National Security Agency
OIE---------- World Organization for Animal Health
PH---------- Public Health
PHEIC---------- Public Health Emergency of International Concern
PHEMC---------- Public Health Emergency Management Committee
PHEOC---------- Public Health Emergency Operating Center
PHO---------- Public Health Officer
PH----------Public Health
PIRI----------Periodic Intensified Routine Immunization
POE---------- Point of Entry
PPE---------- Personal Protective Equipment
PV----------Pharmaco Vigilance
QA----------Quality Assurance
QCL----------Quality Control Laboratory
SARS---------- Severe Acute Respiratory Syndrome

SDD----------Solar Direct Drive
SDG---------- Sustainable Development Goal
SOP----------Standard Operating Procedure
SPP---------- Strategic Partnership Portal
SRS---------- Southern Red Sea
TB ---------- Tuberculosis
TWG----------Technical Working Group
UHC---------- Universal Health Coverage
UN ---------- United Nation
UNFPA---------- UN Family and Population Agency
UNICEF---------- UN International Children and Education Fund,
WCO---------- WHO Country Office
WHO---------- World Health Organization

Foreword

The International Health Regulation (IHR (2005)) represents a binding international legal agreement involving countries across the globe. The aim is to help the international community to prevent and respond to acute public health risks that have the potential to cross borders and make threat to people worldwide.

In line with IHR, the purpose and scope of Eritrea's five Years National Action Plan for Health Security (NAPHS: - 2017 – 2021) is to prevent, protect, control and provide a public health response to the International Spread of diseases. The Government of Eritrea has been and will continue to be committed to the health of its people. Among other things, this has been demonstrated by the remarkable achievement seen in the progress made in the health Millennium Development Goals.

The remarkable achievements in the Health MDGs is the result of many interventions and achievements within and outside the health sectors, including the complementary and mutually reinforcing strategies such as political commitment, investing in social and economic development, providing quality health care, multi-sectoral approach to health, strong community involvement, and having very supportive international partnerships. These achievements would further activate the ongoing emphasis and momentum on our health positive results, including effective implementation of this national action plan for health security in line with the second health sectors strategic development plan (HSSDP-II 2017 - 2021).

The 5 Years' plan will cover 19 key technical areas under the four core components (categories) of prevent, detect, respond and other IHR-related hazards and points of entry. The NAPHS will help in intensifying and maintaining the capacity for prevention, rapid detection, verification and responding to health risks, both diseases and other events. It will also help in effectively utilizing WHO tools and directives on implementing the National Action Plan that support to develop core capacities for surveillance, preparedness and response towards all public health emergencies. Furthermore, it will help in identifying the priorities needed to meet the IHR commitments and obligations.

The spread of infectious diseases is not only limited to human beings as vast majority of epidemics arise on the interface between human and animal health. Thus, health security not only requires strong alliance among nations, but also strong partnerships, cooperation and collaborations among the different sectors, especially between the sectors of human health, animal health and Environment, as "One Health" Approach.

Finally, I would like to re-affirm that the Government of the State of Eritrea will continue to endeavour to protect the health of its people and work together with the international

communities in health emergencies and other health related programs in translating the strategic plan into an effective action plan.

Amina Nurhussien

Minister of Health

Acknowledgement

The Ministry of Health (MOH) would like to recognize and appreciate the commitment of the government of Eritrea for the relentless efforts exerted, so far, to prevent and protect its people from any disease outbreaks or events that might have occurred in-country or imported from outside of the country. At this juncture, it has created enabling environment to develop this National Action Plan for Health Security (NAPHS) that will serve the purpose during the period 2017 to 2021.

Similarly, the MOH is thankful for the commitment and hard work of the various professionals from the different line ministries, other sectors and UN country offices that have contributed to the realization of this document.

Equivalent appreciations and thanks also go to WHO Headquarter, WHO/AFRO and WHO Country Office, as one WHO, for the technical and financial support provided all the way through before, during and after the workshop. Our special gratitude goes to: Dr. Josephine Namboze, WHO Eritrea Representative; Mr. Ludy Suryantoro, WHO/HQ; Dr. Ambrose Talusina, WHO/AFRO; Dr. Sohel Saikat, WHO/HQ; Mr. Paul Verboon, WHO/HQ; Mr.Glen Lolong, WHO/HQ; Dr.Weigong ZHOU, WHO/HQ; Dr.Ogochukwu CHUKWUJEKWU, WHO/AFRO; Dr. Yohannes Ghebrat, WHO Eritrea; and Ms.Winta M. Bairu, WHO Eritrea Intern.

The MOH also recognizes the senior management staffs of the MOH who have contributed invaluable inputs at the different stages of the development of this strategic plan.

Last but not least, the MOH acknowledges the high commitment and coordination exerted by Mr. Tekle Tewolde, the IHR Focal Point and the Manager for the Quarantine & Inspection Unit, and his staff in the development of this plan.

Dr.AndeberhanTesfazion
Act. DG Department of Public Health

EXECUTIVE SUMMARY

Following the adoption of the IHR (2005) in 2009, Eritrea has been monitoring its core capacities implementation using the WHO IHR monitoring Questionnaire and submitted reports to WHO on an annual basis. In 2016, Eritrea conducted Self-assessment using the WHO based standard assessment tool that was followed by a Joint External Evaluation.

A multi-sectoral team of experts (nominated by JEE secretariat) participated in the week long assessment which took place from October 3rd to 8th 2016, in Asmara Eritrea. Eritrea is the fifth country to volunteer for the JEE, after Tanzania, Ethiopia, Mozambique and Liberia. All the 19 action packages/technical areas were assessed.

The findings demonstrated that although there has been major progress, gaps still exist in key core technical areas. Out of the 48 indicators, Eritrea had scored 8 (16.7%) Green (Demonstrated/sustainable Capacity), 30 (62.5%) Yellow (Limited/Developed capacity), and 10 (20.8%) red (No capacity) on the Joint External Evaluation. Except measles coverage under immunization which has scored 5 (Sustainable capacity), majority lie between limited to developed capacity.

As a follow up to the JEE in January 2017, WHO was requested to support in the development of a National Action Plan for Health Security which was materialized in April 2017 through a costing working session with WHO and country experts. This plan aims to reduce morbidity, mortality, disability and socio-economic disruptions due to public health threats and to contribute to the Sustainable Development Goal ≠3 (SDG – 3). Specifically it aims at: i) strengthening and sustaining the capacity of Eritrea to prevent outbreaks and other health emergencies; ii) strengthen and sustain the capacity of Eritrea to promptly detect and confirm outbreaks; iii) strengthen and sustain the capacity of Eritrea to promptly respond to and recover from the negative effects of outbreaks and health emergencies.

The national action plan will align all activities with the “One Health approach” and broader health system strengthening with whole of government/whole of society approach; map existing and potential domestic and external financing to support the delivery of the national action plan and strengthen institutional framework to support Health Security and One Health implementation.

The implementation of the plan will consider a set of guiding principles and core values such as country ownership and leadership; community participation; gender and human rights principles;

equity in access to services; strengthening partnerships; fostering inter-sectoral collaboration; evidence-led; shared responsibility; transparency; resilience and dynamism.

The 5 Year plan (2017 – 2021) will cover 19 key technical areas under the four core components (categories) of prevent, detect, respond and other IHR-related hazards and points of entry with a total cost of USD 53,695,733. The major costs being on the Response component (39.9%), followed by Hazards (28.3%), Detect (17.2%); and then Prevent (14.6%) of the total cost estimate.

The main cost drivers of the National Action Plan for Health Security in Eritrea include the Medical Countermeasures (rehabilitation of the PHARMECOR Section); the Points of Entry; immunization and workforce development. The main cost drivers per JEE thematic areas are presented below:

Core Component	Cost Drivers
PREVENT	• To reduce the incidence of zoonotic diseases by routine immunization. (Immunization) • Equip the AMR standard designated diagnostic labs at zoba-level with Lab supplies (media, reagents, discs, drugs, standard organisms, and standard Lab equipment). (2 labs Mendefera and Barentu) (AMR) • Establish toxicological lab and equip it with both human and instrumental resources (Food Safety)
DETECT	• Train 12 epidemiologists (MSc) in 5 years; Train 20 animal health epidemiologists in 5 years (Workforce Development) • Training for HCW on EPI hazard concept (Training 50 Participants (10 trainings per year total 500 participants) 10 days (HWF) • Training 40 participants (5 times per year) every year 10 days
RESPOND	• Maintenance of the PHARMECOR infrastructure (hire 1 engineer) 1 national at 4,5 and 6 Zobas at 1Million USD including Cold chain structure; Backup generator USD 300K, 2018 • IT system for 10 national, 4 each zoba connection with EOC and 1000 per month

	• Transportation, procurement 4 trucks 4.5 tons truck USD 30K, 2 trucks 2018, 2trucks 2020; • Design and build 1 standardized EOC (1 national) with its ICT equipment furniture (Em. Resp) • 58 sub zoba Training 1 per year 30 participant 5 special perdiem conference package 3 days car rent 1 (Risk Com)
OTHER IHR-RELATED HAZARDS AND POINTS OF ENTRY	• Establish and equip the isolation facilities with relevant equipment and issue at least 2 ambulances/emergency boats for every PHEIC at the POE accordingly. • Procure radiation energy equipment and facilities for different sectors of the country actively engaged in the peaceful use of radiation source for diagnosis and treatment in Public Health, Food and Agriculture, Mining and National land/sea control Agency together with other private sectors in the nation. • Establish a radio-nuclear detection unit. • Establish One Standard National Poison Control Centre

BACKGROUND/CONTEXT

Eritrea Country profile

Situation Analysis (Burden of PHEs in terms or morbidity mortality

The aim of the National Health Sector goal is to ensure that by 2021, 'essential quality health and health related services are efficiently and equitably available to all Eritreans, in line to their specific individual, and communal health needs'. The MOH has been exerting rigorous efforts to improve access and utilization to health services.

To-date, Life expectancy at birth has significantly improved from a low of 49 in 1995 to 64.7 years in 2015. Life expectancy in females stands at 67 years while for males it stands at 62.4 years in Eritrea.

Infant and child mortality have shown significant reductions. IMR was 72/1000 in 1995, 48/1000 in 2002 and 42/1000 in 2010 and declining to 34/1,000 in 2015. Similar impressive figures have been realized in the country for the U5MR, declining from 136/1000 in 1995, going down to 93/1000 in 2002, 63/1000 in 2010 and 47/1000 by the end of 2015.

Eritrea has been very successful in reducing the Maternal Mortality Rate (MMR) from the extremely high 998/100,000 in 1995 (DHS) to 752/100,000 in 2002 (DHS) to 486/100,000 in 2010EPHS) .

The all-cause mortality remains high at 1,297/100,000. The major contributor to this is non communicable conditions, whose mortality is responsible for 671/100,000 persons as compared to communicable conditions (506/100,000 persons) and violence / injuries (119 / 100,000 persons). This is a reflection that the country is dealing with a dual disease burden of NCDs and CDs although the non-communicable disease has out striped the communicable diseases. According to Global Health Statistics report 2016, mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory is on the rise with the cause of premature death (under age 70) is mainly due to cardiovascular disease (37%), cancer (27%), other NCDs (23%) respiratory disease at 8% and diabetes at 4%.

According to the Millennium Development Goals (MDG) Report, the maternal mortality decreased from 1509 maternal deaths/100,000 Live births in 1990 to 501 maternal deaths/100,000 Live Births(LB) by the end of 2015 which is significant reduction (68.4%) while it fell slightly less than the 75% expected reduction. Although the country did not achieve the target, nevertheless, it was counted as one of the few countries in sub-Saharan Africa that made significant progress towards attainment of the target. Similarly, child mortality reduced from 217/1000LB to 47/1000LB classifying Eritrea among the 10 countries in sub Saharan Africa to achieve the MDG4 which is to reduce child mortality rate by two-thirds between 1990 and 2015.

The total fertility, though it reduced from 6.1 in 1995 to 4.8 in 2002 according to the Eritrea demographic and health surveys, it has remained stable only reducing marginally to 4.7 by 2015.

Looking at specific contributors to disease burden, there have been improvements in the incidence, prevalence and mortality due to communicable diseases mainly HIV, TB and Malaria and many of the vaccine preventable diseases.

Political and Socio-economic context

Eritrea has a number of health related Articlesin Eritrean Transitional Civil and Penal Codes and other laws in hierarchy legislations.TheNational Health Policy and the Health Sector Strategic Plan II (2017-2021)and other sub sector policies/guidelines are also supporting documents to implement IHR. The country has conducted the IHR core capacities assessment in 2010, identified the gaps and developed an action plan for the period 2012-2014, which was subsequently updated to cover the period 2014-2016. The country conducted an assessment of almost 40 legal instruments (Codes, Proclamations, Regulations, Legal Notices, and Conventions) to find out Articles that help/impede the implementation of IHR. Out of the articles reviewed, 10 of them were seen to enforce the implementation of IHR 2005. One example is the Eritrean Transitional Civil Code and Eritrean Transitional Criminal Code, proclamations, regulations and Policies have Articles that help the implementation of IHR. The Health sector policy and other sub sector policies/guidelines have various sections that support the implementation of IHR.

A major gap is the lack of a Public Health Act in the country, which is crucial for adequate implementation of IHR and also key in bringing together multisectoralstakeholders.

The high level commitment and leadership in the implementation of the IHR 2005, is an opportunity for ensuring sustainable funding for IHR implementation and should be exploited to strengthen the one health approach.

Health policy and systems: Progress towards achievement of international and national targets

The national health sector policy is based on the principles of provision of essential health care services for all at all ages under the overall global directions of Sustainable Development Goals especially SDG 3 and the principles of Universal Health Coverage (UHC).

The national health system spins under the 6 pillars of HS namely human resources for health, procurement, supply and logistics system, medicines administration and regulation, biomedical and infrastructure engineering, laboratory and imaging services, blood transfusion services and legal affairs.

There exists a Human Resources for Health strategic plan (2012–2016) which is currently being implemented. Human resources for health are recognized as pillars but despite regular production and recruitment of new health workers, the staffing norms are not yet met, especially for specialists at hospital level, including surgeons, radiologists, internists, etc.

Looking at infrastructure, current data show that there are 28 hospitals, 53 health centres and 186 health stations. There exists the National Medicines and Food Administration (NMFA), a body of the Ministry of Health that regulates the quality of pharmaceuticals and medical supplies in the country to ensure that the public has access to quality, safe, efficacious and affordable pharmaceuticals and medical supplies.

At present there are a total of 47 staff members of whom only 16 are skilled and semi-skilled technicians on Biomedical Engineering. Currently, there are 5 levels of laboratories, constituting 1 National Health Laboratory (NHL); 4National Referral Hospital Laboratories; 6 Zoba Regional Hospital Laboratories; 20 hospital laboratories; and 43 community hospital laboratories in the country. The country has a National

Blood Transfusion Policy of 2011 that guides the work of the National Blood Transfusion Services (NBTS) in Eritrea. There is one National Blood Transfusion Center (NBTC) at the capital Asmara, and one Regional Blood Transfusion centre at Gash-Barka. At the hospital level, there are blood banks where refrigerators and standby generators are necessary prerequisites. Currently, the capacity for blood production is 10,000 blood units per year about 2,000 less of the annual target.

There has been no National Health Act or Regulation but there are several proclamations on control of drugs, cosmetics and sanitary items, tobacco control, control of private practice and control of female genital mutilation (FGM) etc. During the period of the implementation of the HSSDP I the health issues were covered by the civil and penal codes. The Legal office, however, has limited expertise in medico-legal issues. It has not developed a strategic plan nor does it have annual operational plan.

In 1996, a first health financing policy was developed, and revised in 1998, in order to cover various aspects of interest including the cost sharing through levying of user fees. This version of the health financing policy was again revised in 2007, in order to have a more comprehensive policy incorporating a deeper consideration of the key health financing functions: revenue collection mechanisms, revenue pooling and risk management, and resource allocation and purchasing. Currently, health services in the country are highly subsidized by the government but other mechanisms have to be established to ensure universal health coverage and national health security.

Situational Analysis: IHR and other complementary assessments

JEE assessment of the 19 packages)

A multi-sectoral team of experts (nominated by JEE secretariat) participated in the week long assessment which took place from October 3rd to 8th 2016, in Asmara Eritrea. Eritrea was the fifth country to volunteer for the JEE, after Tanzania, Ethiopia, Mozambique and Liberia. All the 19 action packages/technical areas were assessed. Eritrea first completed a self-assessment using the JEE tool. The results of this assessment, including host country self-assessed scores for the 19 Action Packages, were then presented to the External Assessment Team (EAT). The EAT and host country experts then participated in a facilitated discussion to jointly assess Eritrea's current strengths, areas which need strengthening, and priority actions; scores were developed through a process of consensus. Action Package scores, supporting information, and specific recommendations for priority actions are provided under the Action Package sections of this report. The results of the assessment and observations of the Host Country's Health Security preparedness in the context of IHR were presented to Minister of Health (Hon. MinisterAminaNurhussien), senior government officials from different ministries in Eritrea and the WHO Country Representative (Dr Josephine Namboze).

Here under is a summary of the JEE scores for the state of Eritrea.

Table 1: Summary scores from IHR JEE, October 2016

CAPACITIES	INDICATORS	SCORE
National Legislation, Policy and Financing	P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR.	**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**
IHR Coordination, Communication and Advocacy	P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR.	**2**
Antimicrobial Resistance	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 programs	**3**
	P.3.4 Antimicrobial stewardship activities	**2**
Zoonotic Disease	P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens	**3**
	P.4.2 Veterinary or Animal Health Workforce	**4**
	P.4.3 Mechanisms for responding to zoonoses and potential zoonoses are established and functional	**2**
Food Safety	P.5.1 Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination.	**2**
Biosafety and Biosecurity	P.6.1 Whole-of-Government biosafety and biosecurity system is in place for human, animal, and agriculture facilities	**2**
	P.6.2 Biosafety and biosecurity training and practices	**2**
Immunization	P.7.1 Vaccine coverage (measles) as part of national program	**5**
	P.7.2 National vaccine access and delivery	**4**
National Laboratory System	D.1.1 Laboratory testing for detection of priority diseases	**4**
	D.1.2 Specimen referral and transport system	**3**
	D.1.3 Effective modern point of care and laboratory based diagnostics	**3**
	D.1.4 Laboratory Quality System	**2**
	D.2.1 Indicator and event based surveillance systems	**3**

CAPACITIES	INDICATORS	SCORE
Real-Time Surveillance	D.2.2 Inter-operable, interconnected, electronic real-time reporting system	**2**
	D.2.3 Analysis of surveillance data	**4**
	D.2.4 Syndromic surveillance systems	**4**
Reporting	D.3.1 System for efficient reporting to WHO, FAO and OIE	**2**
	D.3.2 Reporting network and protocols in country	**2**
Workforce Development	D.4.1 Human resources are available to implement IHR core capacity requirements	**3**
	D.4.2 Field Epidemiology Training Program or other applied epidemiology training program in place	**3**
	D.4.3 Workforce strategy	**4**
Preparedness	R.1.1 Multi-hazard National Public Health Emergency Preparedness and Response Plan is developed and implemented	**2**
	R.1.2 Priority public health risks and resources are mapped and utilized.	**1**
Emergency Response Operations	R.2.1 Capacity to Activate Emergency Operations	**1**
	R.2.2 Emergency Operations Center Operating Procedures and Plans	**1**
	R.2.3 Emergency Operations Program	**1**
	R.2.4 Case management procedures are implemented for IHR relevant hazards.	**2**
Linking Public Health and Security Authorities	R.3.1 Public Health and Security Authorities, (e.g. Law Enforcement, Border Control, Customs) are linked during a suspect or confirmed biological event	**3**
Medical Countermeasures and Personnel Deployment	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency	**2**
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency	**2**
Risk Communication	R.5.1 Risk Communication Systems (plans, mechanisms, etc.)	**2**
	R.5.2 Internal and Partner Communication and Coordination	**3**
	R.5.3 Public Communication	**3**
	R.5.4 Communication Engagement with Affected Communities	**4**

CAPACITIES	INDICATORS	SCORE
	R.5.5 Dynamic Listening and Rumour Management	3
Points of Entry (PoE)	PoE.1 Routine capacities are established at PoE.	3
	PoE.2 Effective Public Health Response at Points of Entry	1
Chemical Events	1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies.	2
	2 Enabling environment is in place for management of chemical Events	1
Radiation Emergencies	.1 Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies.	1
	.2 Enabling environment is in place for management of Radiation Emergencies	1

Out of the 48 indicators, Eritrea has scored 8 green, 30 yellow and ten red on the Joint External Evaluation (Figure 1.)

Figure 1. Status of indicators

INDICATORS	STATUS
8(16.7%)	GREEN
30 (62.5%)	YELLOW
10 (20.8%)	RED

Risk profiling of public health threats

Joint Risk assessment for meningitis outbreak in Eritrea was carried out through the support of WHO experts using a District Prioritization Tool (DPT) during the period 8 – 12 August 2016.

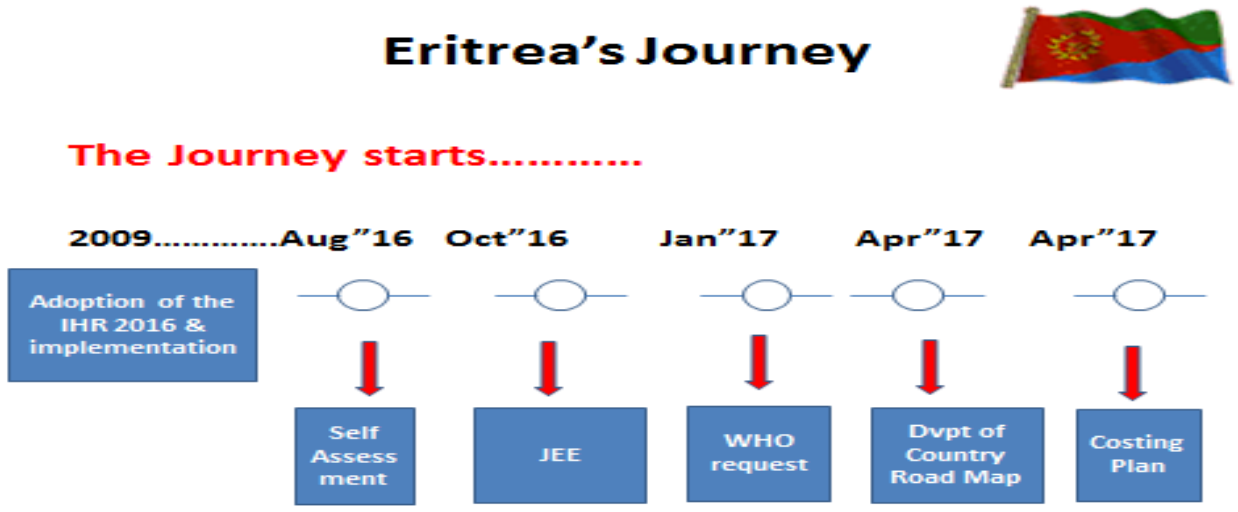
The DPT output highlights a very high risk level in the southern part of Eritrea bordering Ethiopia, an area traditionally prone to meningococcal disease. Similarly, the DPT identified two other areas with very high risk levels for which the historical knowledge and interpretation is not as straightforward: respectively in the Anseba and the Northern Red Sea Zones.

The DPT output also highlights a high risk level in the eastern part of Eritrea bordering Sudan. This area is not exactly matching any similar high risk area directly across the border in Sudan, although the neighbouring states of Sudan includes high and very high risk areas.

Eritrea journey from IHR JEE to Country Planning

Eritrea has adapted and started implementation of the IHR (2005) in 2009 subsequent to a national assessment that was followed by the development of a three year action plan (2009 – 2012). Monitoring was carried out using an annual report till 2016 when an internal self assessment was carried out in August 2016 in line to the guidelines of WHO. In October 2016, the country requested voluntarily WHO to assist conduct a Joint External Evaluation on the 19 technical areas identified as important components of the Global Health security. Relevant recommendations were passed following the assessment and currently the country is in the process of development of a 5 Year National Action Plan for Health Security (2017 – 2021).

Figure 2. Eritrea journey from IHR JEE to Country Planning



VISION, MISSION, OBJECTIVES, GUIDING PRINCIPLES AND CORE VALUES

Vision: A nation that is secure and resilient in the face of diverse incidents with health consequences with people in all communities enjoying a high level of security against threats to their health and well-being.

Mission: To build and sustain the optimum core capacities in the 19 technical areas for health security.

Goal: To minimize human and animal morbidity and mortality associated with all public health events.

General Objectives

1. To prevent and reduce the likelihood of outbreaks and all public health hazards and events defined by IHR (2005).

2. To promptly detect threats (due to all hazards) to save lives and ensure proper control measures.

3. To establish a functional system for effective multi-sectoral national and international response to all public health events.

4. To establish and maintain the core capacities at designated points of entry for routine and timely detection and prompt effective response of any potential hazards.

5. To develop and sustain optimum capacity to prevent, detect and manage chemical events and radiation emergencies.

Guiding Principles and Core Values

1. **Country ownership and leadership:** the state of Eritrea will provide political and technical oversight for all phases of the NAPHS (planning, implementation and M and E), including committing domestic resources to finance the NAPHS.

2. **Equity, gender mainstreaming and human rights** will be promoted in the implementation of this plan. The plan will address all population groups, regardless of their location, ethnicity, gender, age, social, economic, cultural, and political status.

3. **Community engagement:** The community is a crucial unit in addressing health security. Individuals in households with adequate knowledge and skills about prevention of illnesses are able to take timely corrective measures and maintain a healthy lifestyle. Therefore, empowering individuals and households by reaching them through various social groupings can improve people's lifestyles which in turn can improve the individuals' overall health status. Community engagement will be through a participatory approach in development and implementation of culturally acceptable and scientifically sound risk communication strategies.

4. **Partnership, inter-sectoral and multi-disciplinary collaboration:** The partnership principle will be facilitated through inter-sectoral collaboration at community, sub-zoba and zoba levels on the one hand, and involvement of the wide spectrum of all relevant stakeholders at national level. This entails partnership with other government departments, sectors, development partners, and academia.

5. **Efficiency:** The implementation of this NAPHS will foster rationalisation of inputs to ensure maximum outputs and outcomes and value for money (VfM).

6. **One Health Approach:** One Health is an approach that addresses public health events such as high impact infectious diseases arising at the intersection of human, animal (domestic and wildlife), and environmental interface. Humans and animals share the same eco-system and the opportunities for spill-over of diseases are increasing with modern trends in globalization, rapid population growth, climate change, economic development, mass urbanization, and increasing demand for animal sourced foods. Current evidence, indicate that about 75% of the new diseases that have affected humans over the past 10 years have been caused by pathogens originating from an animal or from products of animal origin. This NAPHS is underpinned on the one health approach and will ensure that all phases take into consideration the one health approach.

7. **Alignment and ensuring synergies with UHC and SDGs: E**fforts to build and sustain the IHR core capacities in the state of Eritrea will be based on horizontal rather than vertical approaches for sustainable and resilent health systems that can with stand the shocks from outbreaks and other health emergencies. The implementation this plan will be done in synergy with the implementation of strategies to achieve sustainable development goal

number 3 (SDG-3). The opportunities offered by this NAPHS and UHC 2030 will be harnessed to influence and guide the implementation.

8. **Evidence led and taking into consideration innovations:** The implementation of this NAPHS will take into account emerging trends, risks and health innovations, as well as, inter country, regional, sub-regional and cross-border cooperation to reinforce timely information sharing and coordinated interventions.

METHODOLOGY FOR THE DEVELOPMENT OF THE NAPHS

Following the completion of the IHR JEE in October 2016, a situation analysis was conducted by the State of Eritrea involving multiple stakeholders. This was to ensure that the planning process takes into account all the available information and that a coordinated approach is in the place between different sectors of the government and ministries during the planning and implementation of national action plan for health security. This consultative exercise led to setting priorities and objectives based on the result of the situation analysis and resulted in an agreed set of activities under JEE 19 technical areas.

Planning and costing workshop, Asmara, 4-6, April, 2017

The three levels of WHO (WCO, RO, HQ) worked with the state of Eritrea and other health development partners to facilitate further reviews of priorities to formulate 5-year National Action Plan for Health Security. The participants at the planning workshop are indicated in Annex 4.

Objectives of the SPP workshop

1. Describe activities based on IHR JEE and other complementary recommendation and outline a "one health" "one government" implementation roadmap in coordination with all partners and key stakeholders in Eritrea

2. Secure necessary consultation among the representatives of different line ministries and administrative levels as to promote effective inclusion and multi-sectoral buy-in as necessary to develop and operationalise the NAPHS

3. Apply a transparent process to cost priority activities for their inclusion in national plan for health security and consideration for funding (domestic/external)

4. Identify and account for uncertainty, assumptions associated with the NAPHS in particular on costing and key risks that have significance to the Plan and its operationalization,

5. Develop M&E of the NAPHS commensurate with its phased implementation,

6. Develop an outline strategy for advocacy and communication for domestic and external funding

Outcomes

1. Completed detailed plan agreed with all relevant stakeholders
2. Factor in systematic review of the process to develop the NAPHS and improve the necessary aspects as appropriate during the course of its development
3. Costing of all relevant activities and develop different scenarios to facilitate resource mobilisation (domestic and other sources)
4. Document step by step process involves in costing and refinement of planning
5. Clarify strategy for risk management and contingency to maintain the course of the Plan

During the workshop multi-sectroal breakout sessions reviewed the priority activities, objectives, targets and milestones.

The criteria used to undertake the reviews are indicated in box 1 below:

Box 1. Criteria used to review the priorities

- Based on the listed priorities for 19 technical areas, are there any critical (technical) gaps that need to be addressed?
- Whether the activities stated to achieve the key priority are realistic, relevant and achievable with the milestones and measures in planning context
- Whether activities listed to address priority/gap will develop the health security capacity in a sustainable way in consideration of health systems strengthening and sector wide development

Cost Driver exercise

- Application of cost drivers on key priorities identified i.e. to categorise them into big costs, small costs or in between
- From these priorities of large cost, what would be the major activities and inputs for implementation?

- Of the activities assumed to have a high cost, which are in the Government of Eritrea budget? Of those that are not, are there any development partners who have shown interest in these?

Costing of the action plan

The last two days of the workshop were dedicated to final reviews of the priorities, sequencing and costing to formulate 5-year National Action Plan for Health Security. The criteria applied are indicated in box 2 below.

Box 2. Criteria for final review, sequencing and costing

- Are the activities considered for costing realistic, measurable and will they exert impact and efficiency to corresponding objective(s)?
- Has the technical area adequately considered the activities that will allow the country to demonstrate progress from lower to higher scores?
- Does the plan allow the country to maintain the capacities in areas where it has showed demonstrated capacities (Scores – 4-5)?
- Do the activities under this technical area identify and include other sectors and levels for their participation to deliver the plan underpinning on the "One Health approach, health system strengthening-, equity as and where applicable?
- Do the activities follow a sequential or phased approach (year 1, 2, 3-5) for the plan operationalization commensurate with resource availability and mobilisation by utilising ongoing financial outlook?
- Does the technical area utilise the best available data to categorise activities in terms of domestic vs external funding?
- Has a responsible ministry or ministries/Office or offices been identified to take forward agreed activities?

Prioritisation of activities by technical areas

National consultative process including the two workshops has led to come up with a confirmed list of objectives, target, impact, summary of planned activities, inputs including unit costs for consideration into estimated costing. For unit costs, Government procurement guidelines were used and where data not available, other authoritative sources such as WHO procurement reference are used. Completed detailed plan is given in Annex 5.

Linkage with other programmes/initiatives

Eritrea, like many countries, is developing NAPHS that will be implemented within broader HSS. It is therefore necessary that plans should be reviewed to ensure that priorities across sectors/areas of work are captured but also to avoid unnecessary duplications. By nature and to bring synergies, the state of Eritrea National Health Security Plan is going to be linked with many on-going initiatives across all levels and these include;

- The health sector development plan II
- Strategic plans of other relevant health programs
- Other sectors' plans including animal health and environment

Applying Sector wide approach to implement National Health Security Plan

Sector-Wide Approach (SWAp) is an approach to international development that "brings together governments, donors and other stakeholders within any sector. It is characterized by a set of operating principles rather than a specific package of policies or activities.

There are persuasive arguments for supporting a sector-wide approach (SWAp) as opposed to the traditional project approach: increased health sector coordination, stronger national leadership and ownership, and strengthened countrywide management and delivery systems. These are variously claimed to reduce duplication, lower transaction costs, increase equity and sustainability, and improve aid effectiveness and health sector efficiency.

ASWAp explicitly mandates the ministry of health with the leadership. However, this role has been partly problematic in other countries owing to limited leadership capacity, poor relationship with the ministry of finance, slow shift of ownership, change of senior management, little ministry of health leverage to secure additional funds, and low priority of cross-sectoral collaboration.

The SWApapproach is not yet the practice in Eritrea. Thus, adequate emphasis in financing andbuilding the managerial capacity of the MOH and other relevant ministries should be encouraged to implement the NAPHS.

Monitoring and evaluation of the health sector has become institutionalized. The once or twice yearly joint review meeting is an important instrument providing an open forum to

review the progress and performance of the National Action Plan for Health Security (NAPHS).

MAJOR COMPONENTS OF THE NAPHS

- Planning matrix of priorities – short term (12 months) to long term (> 12 months)
- Costing of activities and summary categorisation
- Financing of National Action Plan (WG, SPP and further donors engagements)
- Risk appraisal and management (WG)
- Platform for National Action Plan – linkage with existing plan; interplay between relevant sectors; enablers
- Contribution to Health System Strengthening and UHC

DELIVERY OF THE NAPHS

- Roles and responsibilities of key stakeholders - National Multi-Agency Taskforce for Action Plan
- Coordination mechanisms
- The SPP workshop identified the need for **a coordination platform** to map and ensure interplay between multiple sectors and other existing plans at all administrative levels of the country. The plan will be implemented under the guidance of the MOH and a multisectoral high level technical group, accountable to the Ministry of Development, with representatives from all relevant line ministries, WHO and other UN agencies, will be formed to administer the plan, and to monitor and evaluate its implementation.
- Framework for delivery of action plan
    - National coordination
    - Alignment internal stakeholders
    - SPP
    - Alignment external stakeholders
- Risk appraisal and management (MS)
- Monitoring and evaluation of the Plan
- Budget and Financial Plan (Annex 5)
    - Budget Summary by interventions
    - Budget summary by cost categories
    - Budget gap analysis:

Overall, in the coming 5 Years period, of the estimated USD 53,695,733 for the implementation of the National Action Plan for the Health Security, the MOH will allocate 26.2% (14,068,282/ 53,695,733) for the implementation of all the programs within the MOH including for the NAPHS.

Fig. 3.Allocation of Funds by Technical Areas of the NAPHS

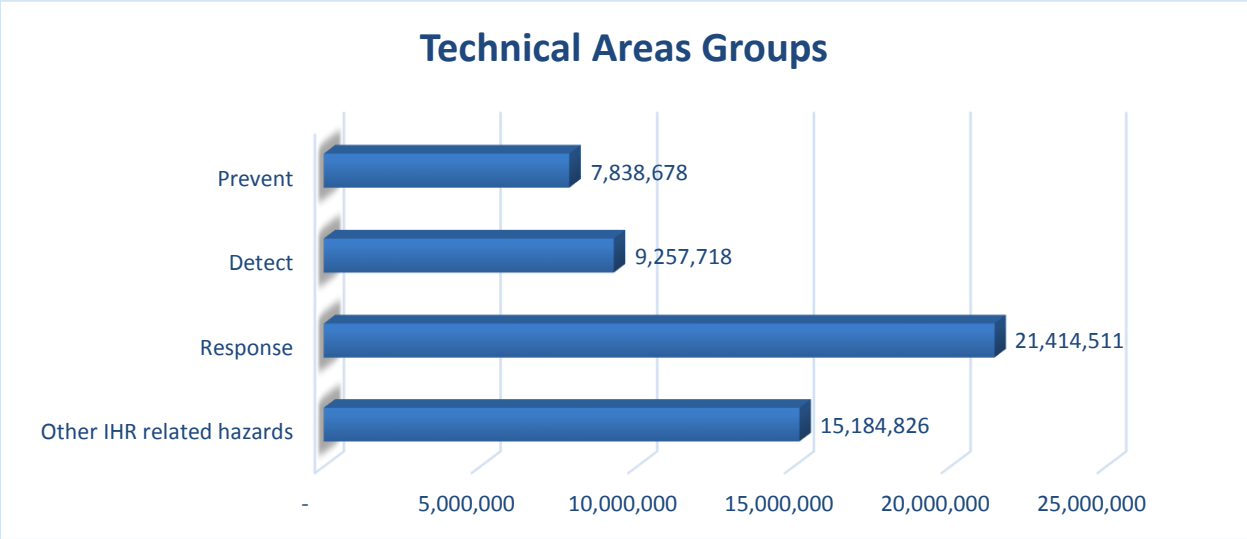


Fig. 4

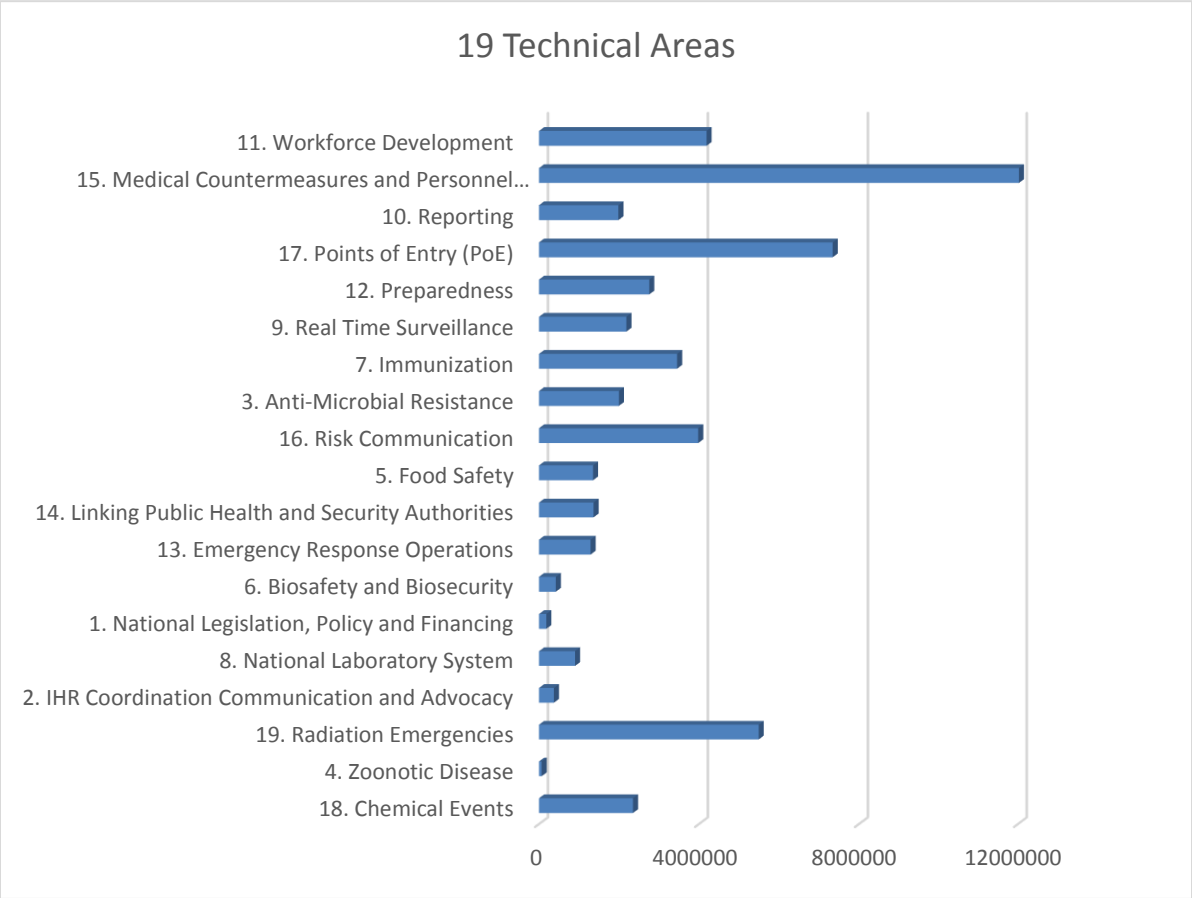
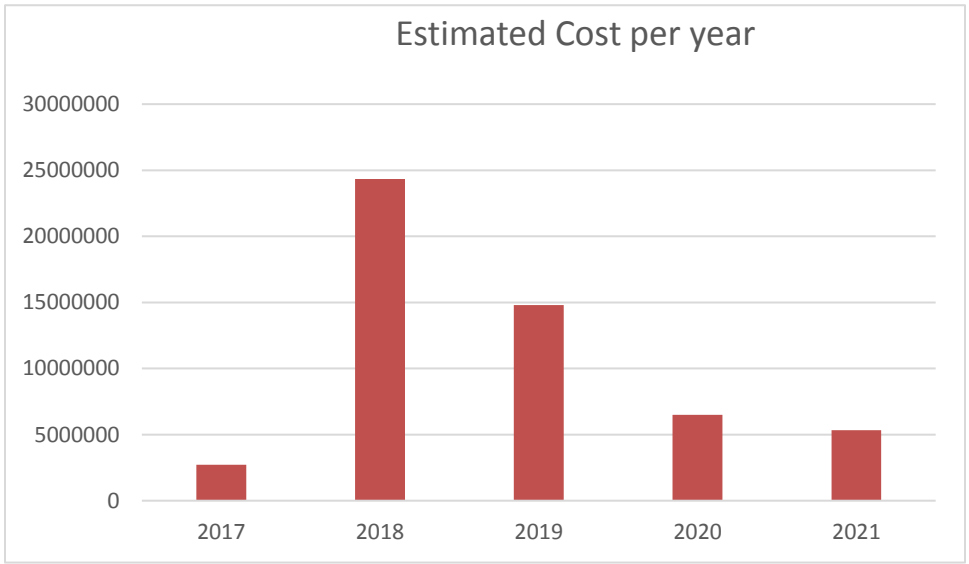


Fig. 5: Distribution of Cost by Year- NAPHS



ANNEXES:

Annex 1: Monitoring and evaluation of the plan

The National Action plan for Health Security will be monitored throughout its life through the mechanisms identified below, according the major elements of the global IHR M&E framework. In addition, the major indicators will be included in the M&E plan of the HSSDP II and reviewed as part of the overall sector review processes, using the same mechanisms at sub-zoba, zoba and national levels.

- **Annual Reporting—**the country will continue to report annually on the development of the main IHR (2005) core capacities as their obligation to report annually to the World Health Assembly on the implementation of IHR (2005). For other process related indicators, these will be reported and reviewed as part of the sector review processes in Eritrea. The major indicators and milestones to be used for annual monitoring are listed in the table 1 below.
- **Simulation Exercises –** Eritrea will conduct at least one simulation exercise annually to test the functionality of the system in a non-event environment and to validate the functional capacities of a system. In addition, there will be one simulation exercise specific for radiation emergencies annually. The findings of exercises can provide a more operational view of the level of capacities across the nineteen technical areas.
- **After Action Review** - An after action review (AAR) is a qualitative review of actions taken to respond to an emergency as a means of identifying best practices and lessons learned. Eritrea will include these in the M&E framework and conduct an after action review following any public health event in the country.
- **The Joint External Evaluations –** The initial JEE provided key recommendations that guided the development of the national actions plan for health security. A second JEE will be conducted as part of the end-evaluation of the NAPHS. There will also be a mid-term review of the plan to assess progress, identify bottlenecks to implementation and provide recommendations to guide implementation in the later half of the plan period.

Table 2. Indicators and milestones for Eritrea NAPHS

	Technical area	Indicator	Data Source	Baseline	Milestone			Target
				2017	2018	2019	2020	2021
PREVENT	**National policy, legislation and financing**	Availability of Public Health Act that incorporates IHR (2005) requirements	MoH		PH law drafted by June 2018; enacted by Dec 2018			PH law fully enforced
		Proportion of total cost of the national action plan mobilized	MoH financial records	4.3%	48.4%	27.4%	13.2%	11.1%

	Technical area	Indicator	Data Source	Baseline	Milestone			Target
				2017	2018	2019	2020	2021
	IHR coordination, communication and advocacy	Availability of multisectoral coordinating mechanisms at each level		2 at national level	6 at zoba level	58 at sub-zoba level		58 at sub-zoba level
		Number of IHR coordination meetings conducted annually	Meeting minutes		12	58		116
		SOPs for information sharing in place			Development of SOPs as on one health approach ensured			SOPs for information sharing are in place & used
	Antimicrobial Resistance	Number of national and zonal laboratories of human and animal health designated for AMR detection and reporting as per the recommended standard	Contract agreement done	2 at National level (1 MoH& 1 MoA)	1 MoMR	3 Zonal (2 MoH& 1 MoA)	3 Zonal (1 MoH& 2 MoA)	*09 *3 MoH, 3 MoA& 1 MoMR *2 existing labs at National level
		Proportion of health facilities conducting functional HCAI and prevention control	Environmental Health (MoH) training minutes	25%	50%	75%	85%	100%
		Proportion of veterinary clinics conducting functional HCAI and prevention control	Agricultural extension (Animal Health unit) training minutes	25%	50%	75%	85%	100%
		Availability of National AMR policy document	NAP developed by MCG for AMR			In place		
	Food Safety	Prevalence of food borne diseases	MoH Report	90%	60%	20%	5%	1%
		Availability of food safety strategy	MOH	0	available	available	available	available
		Proportion of major food handling sites that receive at least two supervision visits per year	MoH	20%	40%	80%	90%	100%

	Technical area	Indicator	Data Source	Baseline	Milestone			Target
				2017	2018	2019	2020	2021
		Number of functional food safety laboratories at national and zonal levels	MoH	1 National	1 National & 2 zonal	1 National & 4 zonal	1 National & 6 zonal	1 National & 6 zonal FS Labs
	Zoonotic Diseases	Availability of a functional zoonotic disease surveillance system in human and animal health	MoA	0	In place			Surveillance system in place & functional
		Propose Indicator for availability of veterinary and animal health workforce at sub-zoba level	Animal and plant health division moa		85% Vet service & Man power keep in place			100%
		Completeness and timeliness of reporting on zoonotic diseases	MoA&MoH	Every 6 months	Every 6 months + annual report	90% reporting on time		6 months + annual timely reports
		Proportion of outbreaks of zoonotic diseases that are responded to within 48 hours	MoA&MoH	Not achieved		60%		100%
	Biosafety and Biosecurity	Availability of a national policy on biosafety and biosecurity	MOH	No B&B policy exists		Policy in place		100%
		Proportion of staff at national and zonal reference labs trained on biosafety and biosecurity	Lab records	Basic lab safety training and practices		80%		100%
		Number of training institutions that have a training programme on biosafety and biosecurity		0	2	6	10	10
	Immunization	% of community Hospitals equipped with standard incinerators	Zoba Annual Report	50%	60%	70%	75%	80%
		% of health facilities with at least two EPI trained health workers	EPI annual report/ HFs assessment	70%	80%	85%	90%	95%
		Proportion of 12 month old who received at least one dose of measles-containing vaccine	HMIS, Survey	83%	85%	88%	90%	95%
DE	**National Laboratory System**	Availability of a national lab system of providing quality laboratory	Lab records	Quality laboratory confirmati		National lab Policy		90%

	Technical area	Indicator	Data Source	Baseline	Milestone			Target
				2017	2018	2019	2020	2021
		confirmation for 10 priority pathogens for human and animal health		on for 6/10 priority pathogens		in place		
		Availability of a quality manual and SOP	NHL Documentation	SOPs available		Development of Quality manual		90%
		Proportion of laboratories with at least two people trained on IHR and GLP	NHL/HR		50%			100%
		Proportion of specimens received at reference labs on time and in good condition	Lab records	70%				100%
	Real Time Surveillance	Proportion of administrative units with at least one volunteer trained in community or event based surveillance	IDSR database	0%	30%	45%	60%	75%
		The proportion of epidemics detected at zonal and national level through weekly analysis of surveillance data and that were missed by the sub-zoba/health facilities level	IDSR database	0%	0%	0%	0%	0%
		Proportion of health facilities submitting complete weekly surveillance report on time to the sub-zoba/zoba level	IDSR database	100%	100%	100%	100%	90%
	Reporting	Proportion of NFP staff at national and zonal level trained on IHR/OIE reporting	MOH -NFP	25%		75%		90%
		Proportion of potential public health events of international concern reported on time		0%		100%		100%
		Availability of protocols/guidelines for IHR NFPs and OIE delegates	MOH-NFP	0		In place		
	Workforce Development	Availability of a field epidemiology training programme	MOH HRH data base	65	40	40	40	185

	Technical area	Indicator	Data Source	Baseline	Milestone			Target
				2017	2018	2019	2020	2021
		Proportion of sub-zobas with at least one basic-trained field epidemiologist and veterinary assistant	MOH &MOA	1 Epi, 0 Vet Assist		2 Epi, 30 Vet Assist		3 Epi, 30 Vet Assist
		Number of zobas with at least one intermediate trained field epidemiologist and vet officer	MOH & MOA	5 Epi, 0 Vet Officer	3, 20	3, 20	3, 20	14 Epi, 20 VO
		Propose Indicator for training on chemical and radiation hazard	MOH	None	2	4	6	6
RESPOND	**Preparedness**	Number of Risk assessments and mapping completed	Assessment report	0	2	4	6	6 (including chemicals /hazards)
	Emergency Response Operations	Availability of EOC /IMS procedures and plans	MOH			Available		
		Availability of PHEOC at national level	MOH			Available		
		Number of zobas and sub-zobas with trained RRTs	MOH	0	20	32	54	64
	Linking Public Health and Security Authorities	Availability of protocols for information sharing between public health and security authorities	MOH			Available		
		Proportion of events with joint response of public health and security authorities	MOH Reports	0%	30%	40%	90%	100%
	Medical Countermeasures and Personnel Deployment	Availability of a national framework for receiving and sending medical counter measures	MOH	0%	30%	50%	75%	100%
	Risk Communication	Availability of risk communication guidelines	H/P recorded report	0	Communication guideline developed	Printed tested &disseminated	In place	In place
		No of zobas and sub-zobas with at least one focal person for health promotion trained on risk communication strategies	H/P recorded report	0	20	32	54	64
		Proportion of households with knowledge of public health risk mitigation and prevention	H/P recorded report	0	2%	10%	20%	25%

	Technical area	Indicator	Data Source	Baseline	Milestone			Target
				2017	2018	2019	2020	2021
OTHER IHR-RELATED HAZARDS AND POINTS OF ENTRY (POE)	**Points of Entry**	Proportion of designated POEs that are adequately equipped	JEE Report	16.7%		50%		75%
		Proportion of designated POEs with adequately trained health personnel	MOH Report	25%		50%		75%
		Proportion of designated POEs with timely access to an isolation facility	MOH Report	25%		75%		100%
		Proportion of designated POEs that are doing routine screening for priority public health events	MOH	75%		80%		100%
	Chemical Events	Availability of a national toxicology chemical centre		0%		In place		
		Availability of guidelines for detection management and response to chemical events				Availability of guidelines		
	Radiation Emergencies	Number of referral health facilities with capacity to manage patients of radiation emergencies	MOH Records	0	2	4	8	8
		Number of radiation drills conducted with the involvement of international experts	MOH Records	0	1	2	4	5

Annex 2: List of Key Recommendations/Priority action for each Technical Area

1. National Legislation, Policy and Financing

i. Formulate the Public Health Act and incorporate/update other relevant policies and guidelines from other sectors to facilitate coordination of the implementation and sustenance of IHR across all levels.
ii. Ensure adequate financing for the implementation of the IHR across all relevant sectors through the creation of a defined budget line for IHR.
iii. Ensure the coordination across sectors by strengthening the existing multisectoral mechanisms that stipulate clear memoranda of understanding (MoUs).
iv. Fast track the promulgation of all the legislations that is in draft form, as well as, review and update relevant policies and guidelines to incorporate IHR in all sectors.

2. IHR Coordination, Communication and Advocacy

i. Strengthen the high level Public Health Emergency Coordination body to be a comprehensive, multi-hazard, multidisciplinary and multisectoral coordination body to enable the implementation and sustenance of IHR requirements across all sectors and at all levels.
ii. Improve the operational capacity and mandate of the IHR NFP with the corresponding resources to fulfil IHR functions. This should be included in the comprehensive multi-hazard plan that is being developed.
iii. Strengthen the institutional capacity of the IHR TWG in line with its mandate and develop ToRs, roles and responsibilities, and establish information sharing pathways to adequately implement IHR and support the IHR NFP.
iv. Develop Standard Operating Procedures for information sharing between Animal and Human sectors and other relevant sectors at all administrative levels under the One Health principles,
v. Conduct simulation exercises to test the coordination and information sharing mechanisms

3. Antimicrobial Resistance

i. Eritrea should develop a National Action Plan to address AMR. This should align with the Global Action plan for AMR, incorporating actions by all relevant sectors; particularly health, veterinary and agriculture.
ii. Eritrea should establish a multi-sectoral National Task Force composed of qualified experts from the relevant sectors.
iii. Eritrea should strengthen the AMR Stewardship Program within animal and public health sectors

iv. Develop Healthcare Associated infection prevention and control policies, strategies and guidelines within animal and public health sectors.
v. Expand the AMR laboratory capacity within animal and public health sectors from national level to the Zones/Zoba and establish an AMR sentinel surveillance system within animal and public health sectors.

4. Zoonotic Disease

i. Develop and disseminate the strategy and guidelines, as well as, review the reporting tools for zoonotic disease surveillance that incorporates One Health and strengthen zoonotic diseases surveillance and reporting.
ii. Build technical and financial capacity for the implementation of the One Health approach at all levels.
iii. Establish One Health coordination structures, TWGs, surveillance and laboratory information sharing and mechanisms for joint response to zoonotic events.

5. Food Safety

i. A multi-sectorial Food Safety Strategy with specific Plan of Action should be developed in the absence of a unifying Food Safety Act. This should involve the input and participation of all relevant stakeholders, including the private sector, at all administrative levels to ensure more effective adoption of a "One Health" approach
ii. Develop and operationalize an integrated Structured Food Borne Disease Surveillance System among all relevant stakeholders/functions (Food, Water, Sanitation, Trade, Public Health, Port/Customs, Agriculture)
iii. Build capacity for skills of epidemiology and laboratory in Food Borne disease surveillance, detection and response provided with sufficient funding.
iv. Strengthen routine monitoring and evaluation to enhance Food Safety and quality control

6. Biosafety and Biosecurity

i. Bio-safety and bio-security legislation should be developed to cover all laboratory and health care sectors dealing with dangerous pathogens.
ii. A multi-sectoral collaboration mechanism should be formalised and implemented and a multi-sectoral strategy and policy should be developed to ensure optimum bio-safety and bio-security of public, animal and agriculture facilities.
iii. Bio-safety and bio security trainings should be strengthened and best practices should be integrated in all relevant sectors.
iv. Dangerous pathogens that may pose public health concerns should be identified, listed, risk profiled and adequate control measures should be taken.

7. Immunization

i. Strengthen periodic intensified routine immunization (PIRI) in less accessible areas and nomadic population groups.
ii. Improve the quality of vaccine management, vaccine administration and data quality audits -DQA through training and supportive supervision.
iii. Improve EPI waste disposal procedure as per the WHO recommended guidelines by installation of more incinerators.
iv. Strengthen investigation and appropriate reporting system of Adverse Event Following Immunization (AEFI)
v. The government should commit to the procurement of Solar Direct Drive (SDD) refrigerators to fill-up the electric supply gaps and to ensure sustainability.

DETECT

8. National Laboratory System

i. Develop a public health laboratory policy and strategic plan.

ii. Establish a laboratory Quality Management and assurance system including targets for certification, accreditation and QA.

iii. Establish policies and guidelines for formal linkage between the animal and human laboratories, including provisions for specimen sharing, information exchange and technical support.

iv. Build technical human resource for laboratory services through formal and refresher training programs.

v. Strengthen Sustainable laboratory capacity in Districts & Regions with improved guidance, SOPs, reagents, equipment and personnel

9. Real-Time Surveillance

i. Develop and disseminate an IDSR electronic reporting system with an electronic database.

ii. Conduct regular monitoring and evaluation of IDSR performance with periodic IDSR indicator review.

iii. Expand and reinforce community based surveillance in all villages and health facilities and strengthen event based surveillance with rumour logging and monitoring and evaluation of performance.

iv. Where feasible, establish/strengthen cross-border surveillance with cross-border collaboration with neighbouring jurisdictions.

v. Establish IDSR information sharing including regular and timely weekly epidemiological bulletins

vi. Introducing and institutionalizing surveillance related training in the pre-service curriculum in institutions of health personnel training.

vii. Expand the mobile SMS technology for reporting of priority disease that is in pilot phase in some of the sub-zobas to all sub-zobas.

10. Reporting

i. Building capacity among personnel in public health and animal health for assessing potential PHEICs and necessary reporting. This includes training of the human resource.

ii. Test the system for reporting PHEICs to WHO and OIE through real-life events or through simulation exercises.

11. Workforce Development

i. Develop and implement a comprehensive workforce development as a key component to sustain best practices of public health services for health security. A workforce gap assessment underpinning one health approach should be conducted to inform the development of the strategy

ii. Increase the pool of epidemiologists with surveillance skills in all hazards at subnational level

iii. Expand the current 4 month Epidemiology course to include a laboratory and veterinary cadres to complement the existing current basic epidemiology program that is being given in the ACHS.

iv. The course on applied epidemiology training program given in ACHS and HAC has to be strengthened within the country to ensure more intakes in higher degreed (Doctor of Veterinary Medicine)

RESPOND

12. Preparedness

i. Conduct an integrated all hazard/Vulnerability risk and resource mapping.

ii. Finalize the National Multi-hazard Public health emergency preparedness and response plan considering all essentials including EOCs, Community Engagement, Cross border

collaboration, multi-sectorial coordination platform, health infrastructure and ensure its implementation with regular exercises

iii. Review the national health infrastructure for emergency response to consider establishment of permanent infection isolation facilities,

iv. Build response capacity in other sectors, including: the security sector, the MOA through prioritization of the Vet-FETP, FELTP, while ensuring dedicated contingency funds for response and no stock out of critical response stocks and laboratory reagents.

v. Strengthen existing EPR structures and develop relevant SOPs and review them with regular exercises

13. Emergency Response Operations

i. Construct or identify dedicated infrastructure for PHEOC at national to Zoba levels equipped with relevant ICT facilities and personnel to activate emergency response.

ii. Develop relevant EOC Standard Operating Procedures, Plans and case management guideline in line with IHR all hazards approach

iii. Train staff in relevant competencies and conduct regular exercises and reviews.

14. Linking Public Health and Security Authorities

i. Establish legal arrangements between ministries responsible for public, animal health and security authorities for integrated emergency preparedness and response. This could be included in anticipated Public Health Act.

ii. Support operational integration of National Emergency Preparedness and Response Plan with security sectors and provide necessary enabling environment to support the coordination.

iii. Establish mechanisms for information sharing between ministries responsible for public and animal health and security authorities at national and local levels and agree clear command and control structure and responsibilities.

iv. Conduct regular simulation exercise on response to disaster or emergencies.

v. Conduct training of relevant people and sectors

15. Medical Countermeasures (MCM) and Personnel Deployment

i. Develop medical countermeasures and personnel deployment plan, SOPs and protocols.

ii. Establish/Formalize agreements with neighbouring countries and regional organizations to ensure mutual cross boarder aid for sending and receiving surge health personnel and MCM.

iii. Conduct inventory and document of existing public health emergency experts in the country that can be deployed for MCM.

iv. Update guidelines for licensing, monitoring and evaluating performance of deployed personnel.
v. PHARMECOR`s storage facilities for bulk items needs to be elevated to the national level with stronger inventory control
vi. Strengthen the capacity for supply chain management
vii. Develop a formal system for sending or receiving MCM health personnel during a public health emergency from outside Eritrea

16. Risk Communication

i. Adapt and incorporate IHR-specific Risk Communications components including a national multi-hazard emergency risk communication plan into existing national policies and plans.
ii. Develop and strengthen IHR and Risk Communications knowledge capacities in the MOH Health Promotion dept and other national stakeholders for effective response and coordination (including SMS),
iii. Review existing Health Promotion policy to integrate risk communications principles that acknowledge community risk perceptions and community participation in development of key messages.
iv. Strengthen and formalise coordination and Risk communications SOPs internally, with partners and with the subnational levels
v. Monitoring and evaluation of the implementation of risk communication strategies can be strengthened, which can also assist with rumour management

OTHER

17. Points of Entry

i. Develop the national public health emergency contingency plan for responding to public health emergencies occurring at points of entry, integrated with other PH Response plans, covering all relevant sectors and services at PoEs (e.g. immigration, transportation, security, media, agriculture etc.), and develop and disseminate to all key stakeholders.
ii. Elaborate the SOPs for screening, isolation, safe referral and transfer of ill travellers to appropriate medical facilities, with MoU between health authorities and facilities for all designated PoEs within the country.
iii. Strengthen the core capacities at all designated points of entry for all the staff including inspection of conveyances, agriculture programme for vectors control and organize ad hoc simulation exercises.
iv. Equip the isolation facilities and increase number of ambulances for PHEIC at the POE,

18. Chemical Events

i. Develop policy and associated statutory guidance for the surveillance and response to chemical risk and events.
ii. Establish a national a chemical/toxicology unit as part of the National Disaster Response Management
iii. Jointly conduct survey and assessment of hazardous substances that potentially affect human, animal health and the environment
iv. Conduct assessment of resources of responding sectors and advocate for improvement in capacity and capability of each to be able to control and prevent the adverse effects of chemicals
v. Establish a National Poison Control Centre and a specialized waste disposal system as well as facilities for hazardous chemicals,

19. Radiation Emergencies

i. Develop optimum capacity to manage a radio-nuclear event which could involve the development of regulatory policy either of its own or as part of the Public Health Act and National Emergency Preparedness and Response Plan.
ii. Strengthen the necessary resources e.g. human, infrastructure, skills to detect and response to radio-nuclear events.
iii. Develop radiation safety programme

Annex 3: Roles and Responsibilities

Roles and functions of the National Steering Committee for Health Security

The *National Steering Committee for Health Security will have the following roles and functions:-*

- Provide strategic leadership in the development, implementation and sustainability of health and wellbeing of people, animals and the environment
- Provide strategic advice, support and assistance in the implementation of the five years strategic plan
- Monitor identified and emerging risks and provide guidance on their prevention, mitigation and management
- Recognise barriers and enablers to fully implement the strategic plan
- Mobilize resources
- Monitor the implementation of the strategic plan
- Monitor the budget and expenditure of the program
- Establish committees at different levels of implementation, including Technical Working Group at National level.

Role of individual members of the National Steering Committee for Health Security

The role of the individual members of the National Steering Committee for Health Security is as follows:-

- *attending regular meetings and actively participating in the committee's work*
- a genuine interest in the initiatives and the outcomes being pursued in the program
- being an advocate for the program's outcomes
- being committed to, and actively involved in, pursuing the program's outcomes

General

Membership

The National Steering Committee for Health Security shall be comprised of:

- Minister of Ministry of Local Government
- Minister of Ministry of Health
- Minister of Ministry of Agriculture
- Minister of Ministry of Land, Water and Environment
- Minister of Ministry of Labor & Human Welfare
- Minister of Ministry of Finance
- Minister of Ministry of Education

- Minister of Ministry of Transport & Communications
- Minister of Ministry of Marine Resources
- Minister of Trade and Industry
- Minister of mining and Energy
- Minister of Development
- Surgeon General of Ministry of Defense
- National Security Agency (NSA) –, consists Security, Police , Immigration
- Commission for Higher Education
- Other members may be included in the committee as deemed necessary.

Terms of Reference for the National Epidemic Preparedness & Response Technical Committee (NEPRTC) /National Public Health Emergency Management Committee (PHEMC)

I. Introduction:-

During the past two decades or so, the world has been challenged by many newly occurring epidemics of international concerns. Such diseases include; Influenza-like illnesses (Severe Acute Respiratory Syndrome (SARS), human influenza caused new-type (Avian influenza caused by H5N1), the Middle East Respiratory Syndrome (Novel corona virus)) and Ebola Haemorrhagic Fever. Where such epidemics occur, countries have been very keen to control them with capacities within countries and support from outside.

Eritrea has always been attentive and on continuous active surveillance on such diseases by programs guided by technical committee formed in 2002. Recently, Ebola Haemorrhagic Fever has become rampant in West African Countries (Sierra Leone, Liberia, Guinea Conakry and Nigeria). Although these countries are very far from Eritrea, by consideration of volatile transportation and population movement through air, land and sea, Eritrea can still be at risk of such epidemics. It is important, therefore, to revitalize the existing technical committee with renewed scope of work.

II. Composition

The National Public Health Emergency Management Committee (PHEMC) will have the following members:-

1. D.G. Department of Public Health (Chairperson)
2. Director, Communicable Diseases Control (Secretary)
3. Director, Health Care Service Delivery Division
4. Director, Pharmaceutical Services Division
5. Director, Environmental Health Division
6. Head, Integrated Disease Surveillance & Response (IDSR) Unit
7. Manager, National Malaria Control Program
8. Director, National Health Laboratory
9. Director, Health Promotion Division
10. Representative from the Office of Health Officer (Health Services of the Ministry of Defense)
11. Head, Quarantine and Inspection Unit/IHR Focal person
12. Representative from MOA (Veterinary)
13. Representative from MO Land, Water and Environment
14. Representative from WHO
15. Other partners can be co-opted as needed

III. Scope of Work

1. The committee is directly responsible to the minister of health
2. Develop /formulate Epidemic Preparedness & Response (EPR) guidelines for use at all levels for epidemic control
3. To enhance surveillance for early detection of cases and facilitate early response
4. Capacity building in terms of human resources, infrastructure, equipment and supplies.
5. Prepare and develop training guidelines on disease surveillance for health workers at all levels.
6. Community sensitization and training
7. To facilitate data analysis interpretation and dissemination to stakeholders on epidemics and provide guidance for enhancing response
8. To endorse protocols for specimen collection and transportation/shipment
9. Preparation of isolation and/or quarantine
10. Prepare plans for strengthening infrastructure at entry points (land, air and sea)
11. Ensure that Personal Protection Equipment (PPE) are made available at headquarter &zonal medical offices for distribution where necessary
12. Notify occurrences of epidemics to the minister of health
13. The committee can further elaborate its scope of work with further discussions

IV. Meeting

The PHEMC shall have daily meeting during epidemics and once every months in normal time.

Core Technical Groups

Groups	**Technical area**	**Responsible Person**	**Organization**
I. Prevent	**1. Legislation, laws, regulations, administrative requirements**	**Tewolde Yohannes , MhariWeldu , TekleTewolde,NasirAbdelkadir**	**MOH**
	2. IHR Coordination Communication and Advocacy	**TekleTewolde , AfewerkiMehreteab, EfremMengsteab, Dr. Yohannes Ghebrat**	**MoH, MOA, MOH , WHO**

	3. Antimicrobial Resistance (AMR), surveillance and Health Care Associated Infections	- **Mr. IyassuBahta;** - GhilayKahsay- - MullugetaAlemu - Mulugeta Russom/Mehari - EphremGhebremeskel	**MOH, MOA**
	4. Zoonotic Diseases and Surveillance (Animal and Human	**Mr. AfewerkiMehreteab , DrAraia Berhane**	**MOA**
	5. Food safety	- **Dr. ZemuiAlemu;** - AngesomAraia, - BiniamTekle, - BereketMosazghi, - NeguseGhebreslassie,	**MOH**
	6. Biosecurity & biosafety	**Mr. YesiefTekle, Mr. EfremGheremeskel**	MOH
	7. Immunization	**Mr. TewdrosYehdego**	**MOH**
I. Detection	**1. National laboratory systems**	**Mr. Salih Said**	**MOH**
	2. **Real time surveillance**	**Mr. Asmerom, DrAraia Berhane**	**MOH**
	3. **Reporting**	**Mr. TekleTewolde, MrAfewerkiMehreteab**	**MOH, MOA**
	4. Workforce development	**Dr. Berhane Debru, MrEyob**	**MOH**
II. Respond	**1. Preparedness**	**Dr. FekremariamGhilamikael, DrAraia Berhane**	**MOH**
	2. Emergency Response Operations	**Ms.Adiam, DrAraia Berhane**	**MOH**
	3. Linking Public Health &Security authorities	**Dr. AndbrehanTesfasion,Mr.TesfayWoldemichael , Mr. MinasieSmret , Mr. AbrhamDebesai, Mr. Belay Ghebrehiwet,Mr. Samson Tesfahiwet**	**MOH, NSA, NSA, NSA, MOLG, Customs**
	4. Medical counter	**Dr. GoitomMebrahtu**	MOH

	measures & personnel deployment		
	5. Risk communications	Mr. GhebremichaelTesfazghi,	MOH
IV. Other IHR related hazards & Point of Entries (POE	1. Point of Entry	Mr. EfremMengsteab,	MOH
	2. Chemical Events	Dr. Michael Ghebrehiwet	MOH
	3. Radiation Emergencies	Dr. Michael Ghebrehiwet	MOH

Annex 4 Attendance of Workshop

on

Development of Eritrea's National Action Plan for Health Security

Asmara Palace, 4 - 6 April 2017

Sr. No.	Name of Participant	Title	Organization	Day 1	Day 2	Day 3
1	Abdu Yacob	PHO	MOH - Gash Barka	√	√	√
2	Abduselam Nassir	Environmental health Head	MOH - SRS	√	√	√
3	Abraham Belay	MOH - EHU	MOH	√	√	√
4	Abraham G/Michael	Project head	MOI	√	√	√
5	AdiamGhebreyohanes	IDSR Staff	MOH	√	√	√
6	AfewerkiMehreteab	Director	Min. of Agriculture	√		
7	AmanuelKifle	Head HMIS	MOH	√	√	√
8	Amb. Mohammed Ali Hurui	DG	MLG	√		
10	AndehaimanotKiflom	PHO	MOH-Debub	√	√	√
11	Dr. AraiaBerhane	Director	MOH	√	√	√
12	Asmerom T/giorgis	IDSR Staff	MOH	√	√	√
13	Assefaw G/Michael	Medical Director	MOH - SRS	√	√	√

14	Batseba Michael	Secretary	WHO	√	√	√
15	Belay G/Hiwet	Director	MOLG	√	√	√
16	BereketMosazghi	Unit Head	MLWE/WRD	√	√	√
17	Dr. Berhana Haile	Director	MOH	√	√	√
18	BerhaneGebrekidan	PHO	MOH - Anseba	√	√	√
19	BerhaneGebretinsae	DG	MOH	√	√	√
20	BiniamTelkezion	Industrial Program Head	Mo. Trade	√	√	√
21	BiniamTsegay	QCL	MMR	√	√	√
22	Bun ThiLan	Representative	FAO	√		
23	Daniel Semere	Director	Min. of Justice	√	√	√
24	Dr. Josephine Namboze	Representative	WHO	√	√	√
25	Dr.ZerabrukTesfamariam	A/Professor	ACHS	√	√	√
	Dr. AndebrhanTesfazion	ADG	MOH	√	√	√
27	Dr. AssefashZehaie	NPO	WHO	√	√	√
28	Dr. BerhaneDebru	ADG of PP & HRD	MOH	√	√	√
29	Dr. Ghirmai T/slassie	Head of Int. hosp	MOH	√	√	√
30	Dr. GoitomMebrahtu	Director	MOH	√	√	√
31	Dr. Kesetebrhan Solomon	Regional Medical Officer	MOH	√	√	√
32	Dr. KifremariamGhilamichael	IDSR Head	MOH	√	√	√
33	Dr. LuulBanteyrga	Medical Director	MOH - Anseba	√	√	√
34	Dr. Michael Ghebrehiwet	Advisor	MOH	√	√	√
35	Dr. YohannesGhebrat	DPC	WHO	√	√	√
36	Dr. ZemuyAlemu	Director	MOH	√	√	√
37	EfremGhebremeskel	Director	Min. of Agriculture	√	√	√
38	EfremMengsteab	Inspection &Quarantine staff	MOH	√	√	√
39	Elsa Haile	Director	MOFA	√		
40	EsayasAnde	Operations Officer	WHO	√	√	√
41	EyobAsmelash	Member	MOFA	√	√	√
42	G/michaelTesfazghi	Director	MOH	√	√	√
43	Dr. GhimjaFessahaye	A/Dean	ACHS	√	√	√

44	GhirmaiMesghena	Economist	Mo. Finance	√	√	√
45	GhirmatsionTesfaslassie	Head Facilitator	Asmara Airport	√	√	√
46	HatemariamHagos	Director	Civil Aviation	√	√	√
47	HuruyAsfaha	Public Health Officer	MOH - SRS	√	√	√
48	Ibrahim Sambuli	Representative	UNFPA	√		
49	IsayasTesfagiorgis	Child Right	Min. of Labour and Human Welfare	√	√	√
50	IyassuBahta	Director	MOH	√	√	√
51	MebrahtomHadgu	ERCAA	Civil Aviation	√	√	√
52	MehariMengisteab	Director	MOE	√		√
53	MehariWoldu	Legal Advisor	MOH	√	√	√
54	MehariZeregabir	PV Officer	MOH	√	√	√
55	MekonenFesahaye	Inspection &Quarantine staff	MOH	√	√	√
56	Michael Berhane	Director General	Min. of Transport	√	√	√
57	MogosAbraha	Inspection & Quarantine Officer	MOH - Gash Barka	√	√	√
58	Mrs. AminaNurhussien	Minister	MOH	√		√
59	Mulubrhane G/Yohannes	Director	DOE/Environmental	√	√	√
60	MulugetaAlemu	Director	MOH	√	√	√
61	Nasser Alkader	Planning Staff	MOH	√	√	√
62	Nicole Miller	Deputy HON	EU	√		√
63	NigusseGhebreslassie	ESI Head	ESI	√	√	√
64	Salem Mohammed Said	Director	NHL	√	√	√
65	Samson Tesfahawariat	Unit Head	Customs	√	√	√
66	SelamBerhane	Information Assistant	WHO	√	√	√
67	SemereGebregiorgis	NPO/MPN	WHO	√	√	√
68	SeyoumTeame	NPPP	UNFPA/MOH	√	√	√
69	Solomon Zerabruk	Director	MTC	√	√	√
70	Talisuna Ambrose	Advisor	WHO	√	√	√
71	Tareke O/Michael	Public Health	MOH	√	√	√
72	TekleFrezghi	Director	MOT	√	√	√
73	TekleTewolde	NFP	MOH	√	√	√
74	TemesgenAbuye	MOI	MOI	√		

75	TerhasMehreteab	Director	MOH	√	√	√
76	TesfagabirBereketeab	Quarantin Officer	NOH - SRS	√	√	√
77	TesfaiKidane	Massawa Quarantine	MOH	√	√	√
78	Tesfai Solomon	Director	MOH	√	√	√
79	TesfaiWoldemichael	Internal Officer	National Security	√	√	√
80	TesfaiYosieph	Unit Head	Min. of Agriculture	√	√	√
81	TewoldeYohannes	Director	MOH	√	√	√
82	TzeggaiKidanemaryam	Surveillance Officer	WHO	√		
83	WintanaBairu	WHO-Intern	WHO	√	√	√
84	Yemane Haile	Medical Director	MOH-Debub	√	√	√
85	YemaneTeadel	ADG	MOH	√	√	√
86	YemaneTseggai	Director	EDF	√	√	√
87	YoditHiruy	Health Specialist	UNICEF	√		
88	YosiefTekle	Head of Food Laboratory	MOH, NHL	√	√	√
89	DanaitGebrehiwet	MOI	MOI		√	√
90	AmarshTsegai	MOI	MOI		√	√
91	YassinSaleh	MOI	MOI		√	√
92	AzmeraGebreslassie	Data Manager	WHO		√	√
93	SohelSaikat	Technical Experts	WHO - HQ	√	√	√
94	LudySuryantoro	Technical Experts	WHO - HQ	√	√	√
95	Paul Verboon	Technical Experts	WHO - HQ	√	√	√
96	Glen Lolong	Technical Experts	WHO - HQ	√	√	√
97	Dr. Weigong ZHOU	Technical Experts	WHO - HQ	√	√	√
98	Dr. Ogochukwu CHUKWUJEKWU	Technical Experts	WHO-AFRO	√	√	√

Annex 5: Key Technical Areas and experts

Berhane Gebretinsae Health Systems, MOH

Groups	Technical areas	Names of Subcommittee members of key technical groups	Organization
Prevention	1. **Legislation, laws, regulations, administrative requirements** ,	- Mr. Tewolde Yohannes , MehariWeldu , TekleTewolde , TesfaiYosief(MOA), *Nasir*Abelkadir	MOH, MOA
	2. **IHR Coordination, Communication and Advocacy**	Mr. TekleTewolde , AfewerkiMehreteab, EfremMengsteab, Dr. Yohannes Ghebrat	MOH, MOA , WHO
	3. **Antimicrobial Resistance (AMR), surveillance and Health Care Associated Infections**	Mr. IyassuBahta, GhilayKahsay, MullugetaAlemu,MulugetaRussom,MehariZeragabir EphremGhebremeske	MOH, MOA
	4. Zoonotic Diseases and Surveillance (Animal and Human	Mr. AfewerkiMehreteab , EyobTsegehannes	MOA
	5. **Food safety**	Dr. ZemuiAlemu, AngesomAraia, BiniamTekle, BereketMosazghi, NeguseGhebreslassie,	MOH, MOA, MOTI, MOWLE, MOTI(ESI)
	6. **Biosecurity & biosafety**	Mr. Salih Said , Mr. YesiefTekle, Mr. EfremGheremeskel	MOH, MOA

	7. **Immunization**	Mr. TewdrosYehdego, Dr. BehanaHaile,YoditHuruy, TsegaiKidanemariam,AfewerkiMehreteab	MOH, UNICEF,WHO,MOA
II. Detection	**1. National laboratory systems**:	Mr. Salih Said , Mr. YesiefTekle, Mr. EfremGheremeskel	MOH,MOA
	2. Real time surveillance	Dr. Araia Berhane, Mr. Asmerom , Dr. FikremariamGhilamichael	MOH
	3. Reporting	Mr. TekleTewolde , Mr. AfewerkiMehreteab, Dr. Yohannes Ghebrat	MOH, MOA, WHO
	4. Workforce development	Dr. Berhane Debru, Mrs. TerhasMehreteab, AfewerkiMehhreteab , AmanuelKidane	MOH, MOA,ACHS
III. Respond	**1. Preparedness**	Dr. FikremariamGhilamichael, Dr. Araia Berhane, Dr. Yohannes Ghebrat	MOH, WHO
	2. Emergency Response Operations	Dr. Araia Berhane, AdiamGherehannes , Dr. FikremariamGhilamichael, Dr. Yohannes Ghebrat	MOH
	3. Linking Public Health &Security authorities (PHS)	Dr. AndbrehanTesfasion, Mr. TesfayWoldemichael , Mr. MinasieSmret , Mr. AbrhamDebesai, Mr. Belay Ghebrehiwet ,Mr. Samson Tesfahiwet	MOH,NSA,MOLG,MOF (Customs)
	4. Medical counter measures &	Dr. GoitomMebrahtu	MOH

	personnel deployment		
	5. Risk communications	Mr. GhebremichaelTesfazghi, AmanuelGhirmazion,MekonenFeshaye, AbrhamGhebremicael, AwetAraia	MOH, MOI, UNICEF
IV. Other IHR related hazards & Point of Entries (POE)	**1. Point of Entry**	- Mr. TekleTewolde,EfremMengsteab**,** Solomon Zeraburuk GhirmazionTesfamariam, HabtemariamHagos, Michael Berhane, Dr.Yohannes Ghebrat	MOH, MOTC
	2. Chemical events	Dr. Michael Ghebrehiwet, Mr. MuluberhanGhebreyohannes**,** Bereke**t**Mosazghi, NegusseGhebreselasie	MOH, MOLWE,MOTI
	3. Radiation Emergencies	Dr. Michael Ghebrehiwet**,** Dr. ZekariasMeles, Yohannes Frezghi	MOH

Annex 6: Detailed Implementation Plan of the Health Security

1. National Legislation, Policy and Financing

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing					Total Cost Year					TOTAL
			2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
National Legislation, Policy and Financing													
To develop the Public Health Law by the end of 2018													
Recruit PH Law Consultant to help to prepare draft public health law	Consultant for 10 days	8,500		1				-	8,500	-	-	-	8,500
Formulation of multidiscpilnary technical working group	Workshop (3 times) Conference Package (no hall rent) 20 Participants 1 day meeting	840	1	2				840	1,680	-	-	-	2,520
Consensus Work shop to review and finalize the draft law.	Workshop 60 participants (10 Zoba) Conference Package 3 days	8,629		1				-	8,629	-	-	-	8,629
Printing for workshop participants	Printing 100 copies draft strategic plan document (200pages) @ USD 80 per copy	8,000		1				-	8,000	-	-	-	8,000
Enact the PH law	No cost incured	-		1				-	-	-	-	-	-
PH law gazetted 1000 copies	Printing Print 1000 copies at a cost of USD 80 per copy	80,000		1				-	80,000	-	-	-	80,000
Review/update other relevant policies and guidelines from other sectors, to facilitate coordination, implementation and sustenance of IHR across all levels by the end of 2018													
* Establish multisectoral TWG to review and update policy and guidelines * Identify and recuirt national consultant * Conduct inventory of existing policies and guidelines from relevant sectors * Identify gaps with respect to IHR * Update/incorporate policies and guidelines to be in line with IHR	National consultant National Consultancy fee per day @200USD for 10 days	2,000		1				-	2,000	-	-	-	2,000
	Workshop Conference Package 30 participants/5 days	6,125		1				-	6,125	-	-	-	6,125
Consensus building workshop to a newly updated policy document.(ensure there is no redundency / conflicting messages in the documents)	Workshop 60 participants (15 Zoba) Conference Package 1 day	4,108		1				-	4,108	-	-	-	4,108
Print policy document	To print 500 copies @ 8 USD	4,000		1				-	4,000	-	-	-	4,000
Ensure that adquate financing is allocated for smooth implementation of IHR across all relevant sectors throughout													
* Advocacy meeting with higher level officials, policy maker and development partners. * Resource mobilization to secure funding	Meeting Conference Package 30 Participants 1 day	1,393	1	1	1	1	1	1,393	1,393	1,393	1,393	1,393	6,965
Update existing draft laws, promulgate and coming to force by June 2018													
Ensure that all line ministries update the existing draft law and promulgate them	International Consultancy 5 days	5,250		1				-	5,250	-	-	-	5,250
	Printing 500 copies @USD 25	12,500		1				-	12,500	-	-	-	12,500
Develop instutional capacity for coordination and implementation of IHR legislation and policies at higher governmental level	Procument goods Procure 2 Laptop computers @ 1500 USD	3,000	1					3,000	-	-	-	-	3,000
Maintance	Procure A4 Size papers 50 times per year @10USD. Procure 4 pieces of toner cartileges Q7551A @150USD	1,100.00	1	1	1	1	1	1,100	1,100	1,100	1,100	1,100	5,500
Maintance	Mobile telephone card 50 permonth @USD 8 (110ERN)	4,800	1	1	1	1	1	4,800	4,800	4,800	4,800	4,800	24,000
National Legislation, Policy and Financing								11,133	148,085	7,293	7,293	7,293	181,097

2. IHR Coordination, Communication and Advocacy

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing					Total Cost Year					TOTAL
			2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
IHR Coordination, Communication and Advocacy													
A functional mechanism is strengthened for the coordination and integration of relevant sectors in the implementation of IHR													
Develop SOPS. On coordination and integration mechanism of all relevant sectors for implementatiion of IHR	International Consultancy for 10 days	8,500	1					8,500	-	-	-	-	8,500
Consensus Work shop on the draft SOPs.	Workshop Conference Package for 3 days 50 Participants (10 Zoba) Printing 100 copies draft strategic plan document (200pages) @ USD 80 per copy	15,509	1					15,509	-	-	-	-	15,509
Print 500 copies of 250 pages	Print 500 copies at a cost of USD 80 per copy	40,000	1					40,000	-	-	-	-	40,000
Training On coordination and integration mechanism of all relevant sectors for implementatiion of IHR	Conference Package 3 days 30 Participants Perdiem 530 ERN (35USD) Frequency: 1 per year, every year (National)	8,289		1	1	1	1	-	8,289	8,289	8,289	8,289	33,156
Improve the operational capacity and mandate of the IHR													
Conduct training work shop on IHR core capacities	Conference Package for 1 day 30 Participants Perdiem (35USD) Frequency: 1 per year, every year (National)	4,303		1	1	1	1	-	4,303	4,303	4,303	4,303	17,212
Provision of office equipment and supplies	Procurement goods (one time purchase) * 12 Desk top Computer @ 1600 USD * 6 lazer printer @ 800 USD * 12 laptop computer @ 1500 USD * 4 medium size Photocopier @ 2500 USD	52,000		1				-	52,000	-	-	-	52,000
Improve office communication,Connectivity and networking	Procument goods * 5 Fax machine @ 1000 USD	5,000	1					5,000	-	-	-	-	5,000
	Installation of Internet connectivity with all zobas @ 10,000 USD (5)	50,000	1					50,000	-	-	-	-	50,000
	Maintenance costs plus (USD 1000 times 5 Zoba per year)	5,000	1	1	1	1	1	5,000	5,000	5,000	5,000	5,000	25,000
To develop SOPs for information sharing between animal and human sectors by January 2018													
Identification of focal point in both ministries	No cost incured	-	1					-	-	-	-	-	-
Establish a committee from both ministries to develop the required with local expertise	No cost incured	-	1					-	-	-	-	-	-
Conduct simulation exercises to test the coordination and information sharing mechanisms													
Develop/Adopt SOPs for simulation exerrcise	International Cosultant - Hire technical expertise to support the development of SOPs for 7 days	6,550		1				-	6,550	-	-	-	6,550
Conduct simulation exercises once a year in every zoba	Workshop Simulation Exercise Conference Package for 2 days (30 Participants) Car rental @ 166 USD/day for 2 days Perdiem 30 people @ 35 USD/day	6,628			6	6	6	-	-	39,768	39,768	39,768	119,304
IHR Coordination, Communication and Advocacy								124,009	76,142	57,360	57,360	57,360	372,231

3. Antimicrobial Resistance and

4. Zoonotic Diseases

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing					Total Cost Year					TOTAL
			2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
Anti-Microbial Resistance													
To improve national plan for AMR and ensure the functionality. Develop National Action Plan for AMR to be aligned with the GAP of AMR													
Establish National Multi-sectoral co-rdination Group and organize orientation workshop.	Workshop Conference Package for 1 day 50 participants (25 Visiting)	4,658	1		1		1	4,658	-	4,658	-	4,658	13,974
Recruit Technical consultant for Human & Animal Health to Develop the draft national plan of AMR including conduct situational analyis, M&E, budget, and costing	International consultant for 15 days	11,750	1					11,750	-	-	-	-	11,750
*Develop operational plan (activities, timetable, implementation arrangements, and responsible stakeholders) including identifying strategic priorities, objectives and interventions.	Workshop Conference Package for 3 days 40 participants	4,879	1					4,879	-	-	-	-	4,879
Validation of the Draft National action plan	Workshop Conference Package for 1 day 60 participants (20 visiting)	4,593	1					4,593	-	-	-	-	4,593
Promote and regulate Antimicrobial use													
Establish technical working group (TWG) from relevant stakeholders and conduct meeting	Meeting Conference Package 20 Participants 1 day (10 times) 5 for 2017 and 5 for 2018 Refreshment (1) @ 3.5 USD/day No Hall rent	770	5	5				3,850	3,850	-	-	-	3,850
Recruit a technical expert to develop AMR policy.	International consultant for 5 days	5,250		1				-	5,250	-	-	-	5,250
Conduct a consensus building workshop to validate the draft AMR policy document.	Workshop 100 participants (20 Visiting) Conference Package for 2 days	10,446		1				-	10,446	-	-	-	10,446
Printing and desemination of the AMR policy	Print 1000 copies of policy documents @ 10 USD	10,000		1				-	10,000	-	-	-	10,000
Conduct consesus building workshop to validate the draft Medicine Scheduling Manual	Workshop 100 Participants (20 Visiting) Conference Package for 2 days	10,446	1					10,446	-	-	-	-	10,446
Printing and desemination of the Medicines Sheduling Manual.	Print 1000 copies of medicine schedduling @ 25 USD (100 pages)	25,000	1					25,000	-	-	-	-	25,000
Conduct AMR study at selected Hospitals	Lumpsum 5 pilot hospitals @10kUSD 1 every 2 years	50,000	1		1		1	50,000	-	50,000	-	50,000	150,000
Conduct rational use survey on antimicrobials at selected hospitals and veterinary clinics	Site Supervisory visit 3 people for 20 days (10 hospitals, 2 days per hospital) perdiem 35USD Car rental (including driver and fuel) stationary 7USD perperson Incentive for data collectors @USD10 per person per day, for 10days 5 people per hospitals, in 10 hospitals + Vet 6 clinics	10,821	1	1	1	1	1	10,821	10,821	10,821	10,821	10,821	54,105
Improve functionality of HCAI and prevention/control at all level of health facilities													
Establish a TWG on IPC and conduct situational anlaysis (based on "one health approach")	Meeting Conference Package for 2 days 20 participants 5 times in 2 months	9,030	1					9,030	-	-	-	-	9,030
Recruit technical expert to develop IPC policy and guidelines.	International consultant for 10 days	8,500	1					8,500	-	-	-	-	8,500
Print the developed policy and Guidelines	Print 1000 copies of policy documents @ 10 USD (40 pages) and guidelines @15USD (60 pages)	25,000	1					25,000	-	-	-	-	25,000
Consensus building for the draft policy and guidelines	Meeting Conference Package for 2 days 100 participants (30 visiting)	11,686	1					11,686	-	-	-	-	11,686

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing					Total Cost Year					TOTAL
			2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
Conduct training on IPC ("one health approach")	Training (2 a year) every year 50 participants (15 visiting) Conference Package for 3 days	8,264	2	2	2	2	2	16,528	16,528	16,528	16,528	16,528	82,640
To upgrade and maintain national lab capacities and establish AMR diagnostic labs at zoba level (Health and Agriculture)													
Procurement of Lab supplies (media, reagents, discs, drugs, standard organisms, standard Lab equipments) for NHL-MoH and NAPHL-MoA	Procurement of goods Detailed to be obtained from the NHL	307,600		1				-	307,600	-	-	-	307,600
Construction of two AMR standard diagnostic Labs (incenerator, generator, cold room inclusive) at zoba-level for both NHL-MoH and MoA	Hire experts to give analysis on apraisal of the potential cost National consultant (1 month) (20days @200USD) (4 experts: 2 MOH, 2 MOA)	16,000	1					16,000	-	-	-	-	16,000
Construction of two AMR standard diagnostic Labs (incenerator, generator, cold room inclusive) at zoba-level for both NHL-MoH and MoA	Depending on the apraisal @ estimated 300K per lab	300,000			1		1	-	-	300,000	-	300,000	600,000
Equipe the AMR standard designated diagnostic labs at zoba-level with Lab supplies (media, reagents, discs, drugs, standard organisms, standard Lab equipments). (2 labs Mendefera and Barurtu)	Procument of goods Detailed to be obtained from the NHL	615,200			1			-	-	615,200	-	-	615,200
Recruit technical expert for capacity building of Lab personnels. *Develop training manual	Training (ToT) International consultant recruit technical expert for 5 days	5,250		1				-	5,250	-	-	-	5,250
Conduct training for trainers (30)	Training Conference Package for 5 days 30 Participants (10 visiting)	8,175		1				-	8,175	-	-	-	8,175
Anti-Microbial Resistance								212,741	377,920	997,207	27,349	382,007	1,997,224
Zoonotic Disease													
To have an improved system for efficient reporting at national & international levels. Strengthen the One Health approach.													
Review stretegy guidelines. Review reporting systems of zoonotic diseases. Conduct meetings to facilitate sharing of information amongst MOA & MOH. 1. SOP Development: Recruit technical expert to develop policy, guideline and reporting system/forms of zoonotic desease	2 Consultant International 10 days	17,000		1				-	17,000	-	-	-	17,000
2. Conduct a consensus building workshop to validate the draft documents (policy, guidline and reporting forms) on zoonotic diseases.	Meeting Conference Package for 2 days 30 participants (35 per diem)	6,296		1				-	6,296	-	-	-	6,296
3. Print and deceminate the devoloped documents (policy, guidelines and reporting forms) on zoonotic diseases	Disemination Workshop 6 (1 per Zoba) 15 Participants (8 per diem) Conference Package for 3 days (no lunch) +Printing 100 copies for 40 pages	7,179			1			-	-	7,179	-	-	7,179
4. Conduct training on zoonotic disease for relevant stakeholders ("one health approach')	Training (2 trainings: Health and Agriculture) Conference Package for 4 days 40 participants (35 per diem)	27,064		1				-	27,064	-	-	-	27,064
To ensure the harmonious work in exchange of information to control zoonotic disease.													
Conduct workshops to establish the One Health approach. Form a committee of health professionals. Conduct workshops for experts from the two ministries (MoA and MoH)	Meeting Conference Package for 3 days 30 participants (8 per diem)	3,759		1				-	3,759	-	-	-	3,759
To ensure the two Ministries (MOA & MOH) are working together towards one goal.													
Organize workshops to establish suitable structures to enable MOA & MOH to work together. *Establish TWG from relevant stakeholders to fight zoonotic disease and conduct workshopfor surveillance teams. *Conduct surveillance activity on the issue zoonotic diseases at national level *Identify surveillance team and engage them on active disease surveillance.	Workshop Conference Package for 5 days (no lunch) 40 participants	3,945			1			-	-	3,945	-	-	3,945
Zoonotic								-	54,119	11,124	-	-	65,243

5. Food Safety

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing					Total Cost Year					TOTAL
			2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
Food Safety													
Early detection, prevention and response mechanism enhanced													
Establish TWG from relevant stakeholders and develop ToR	Meeting Conference Package for 1 day (15 times in 3 months) 15 Participants	6,945	1					6,945	-	-	-	-	6,945
Recruit a consultant to support the TWG on conducting situational analysis and drafting strategic plan of action	International consultant for 5 days	5,250	1					5,250	-	-	-	-	5,250
Conduct a consensus meeting and finalize the document	Workshop 60 participants (20 visiting) Conference Package for 3 days	10,139		1				-	10,139	-	-	-	10,139
Print and diseminate the developed document	Print 500 copies of the document @ 10 USD	5,000		1				-	5,000	-	-	-	5,000
Strengthen surveillance and response system for FBD													
Establish Multi sectoral Coordination Group for surveillance of FBD	Workshop 60 participants (20 visiting) Conference Package for 3 days	10,139		1				-	10,139	-	-	-	10,139
Conduct regular coordination meetings to review on going and planned activities	Monitoring and Evaluation Meeting (4 times a year) every year * refreshment for 20 person @ 7 USD per person/per day for 1 day	300	4	4	4	4	4	1,200	1,200	1,200	1,200	1,200	6,000
To achieve strong surveillance system for													
Establish toxicological lab and equipe it with both human and instrumental resources	*construct two standard lab setting @ 300K each for use by MoH and MoA * procure equipments and reagents for toxicological lab use by both MoH and MoA @ 70,000 USD per one setting (lumsum)	740,000			1			-	-	740,000	-	-	740,000
Harmonizing information sharing among existing lab Establish information sharing network	National Consultant 1 month (20days @200USD) to review and assess the existing information sharing capacities and make recommendation on how to establish an information sharing platform including M&E	4,000	1					4,000	-	-	-	-	-
Review and implement the recommendation on the establishment of information sharing platform including M&E mechanism	Depending on the result of the review and recommendation. Covered partially by other technical areas. Need staff focused on reporting/M&E	3,000	1	1	1	1	1	3,000	3,000	3,000	3,000	3,000	15,000
Provide training for trainers key personnel of the MCG and lab experts, and Health professionals	Consultant Hire 2 international TA @ 500 USD consultation fee perday/per person for 10 days (To develop training materials and conduct training)	17,000		1				-	17,000	-	-	-	17,000
Training	Train the trainers 30 Participants (10 visiting) Conference Package for 5 days	8,175		1				-	8,175	-	-	-	8,175
Provide training for key personnel of the MCG and lab experts, and Health professionals	Training 40 participants (20 visiting) Conference package for 2 days	5,826		1	1	1	1	-	5,826	5,826	5,826	5,826	23,304
Upgrade the food labs with standard equipments and infrastructures	Procurement of food lab equipments: High Performance Liquid Chromatorgraphy, Atomic Absorption Spectrometer, and Gas Chromatography Mass Spectometer *lumpsum @ 500KUSD	500,000			1			-	-	500,000	-	-	500,000
Effective M&E activities are in place													
Establish an infrastructure on the reporting system of FBD to be include in one health reporting mechanism HMIS mechanism	No incured cost related, to be integrated and harmonized in the HMIS mechanism	-		1				-	-	-	-	-	-
Food Safety								20,395	60,479	1,250,026	10,026	10,026	1,350,952

6. Biosafety and Biosecurity

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing					Total Cost Year					TOTAL
			2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
Bio-safety & Bio-security													
Comprehensive oversight system for pathogen biosafety and biosecurity, strain collections, containment laboratories, and monitoring systems. That includes identification and storage of national strain collections in a minimal number of facilities.													
Recruit a consultant to support in the development of policy and legislation on B&B ("one health approach") including biological risk assessment	Hire two international TA for 10 days	17,000	1					17,000	-	-	-	-	17,000
Draft the policy and legislation on B&B and validate it through a consensus workshop	Workshop 30 participants Conference Package (no lunch) for 15 days	8,955	1					8,955	-	-	-	-	8,955
	Workshop *Conference Package for 3 days * 60 Participants (40 visiting)	13,159	1					13,159	-	-	-	-	13,159
Finalize, print and diseminate policy and legislation document on B&B	* print policy and legislation documents @ 8 USD for 500 copies per documrent (policy + legislation documents)	4,000	1					4,000	-	-	-	-	4,000
To establish multi-sectoral co-ordination group on B&B for human, animal and agricultural facilities.													
Establish B&B MCG from relevant stakeholders and conduct regular meetings Establish B&B TWG and conduct regular meeting to monitor the implementation of B&B ("one health approach")	*refreshment for 30 persons @ 7 USD per person/per day for 3 days (5 times) * develop TWG's TOR and guidelines	1,560	5					7,800	-	-	-	-	7,800
Establish clear TOR and guidelines	no cost incured	-	1					-	-	-	-	-	-
To enhance B&B skills and capacities													
Hire a consultant to conduct B&B trainings and best practices	Hire an international TA for 10 days	8,500		1				-	8,500	-	-	-	8,500
Conduct training on Biological risk assessment and Biological risk management	Conference Package for 5 days 40 Participants (20 visiting)	12,045	1	1	1	1	1	12,045	12,045	12,045	12,045	12,045	60,225
To ensure that especially dangerous pathogens are identified, held, secured and monitored in a minimal number of facilities according to best practices.													
Establish laboratory containment (biosafety level 3) facilities to ensure proper storage of dangerous and toxins.	* procure two safety cabinet class 3, PPE, and other relevant matterials for use by MoH and MoA @ 150,000 USD (lumsum) Biosafety cabinet class II (2) - Safety shower (2) - Refrigerators with security lock - Personal protective equipment - Eye fountain (2) - Autoclave - Incubator - Lab coat for TB lab (10) - Deep freezer,-700C - Inspisetor - Water bath (2) - Centrifuge with its accessories (2)	300,000		1				-	300,000	-	-	-	300,000
Identify,list and update inventory of dangerous pathogens and toxins at all facilities	no cost incured	-	1	1	1	1	1	-	-	-	-	-	-
Bio-safety & Bio-security								62,959	320,545	12,045	12,045	12,045	419,639

7. Immunization

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing					Total Cost Year					TOTAL
			2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
Immunization													
To Enhance equitable access to quality EPI/VPD in all identified hard to reach areas to increase timely uptake of vaccine doses according the vaccination schedule													
Conduct 4 times/year Periodic Intensified Routine Immunization (PIRI) services. Provide supportive supervision in identified less accessible geographical areas.	Field visit (4 HWs/team * 3 teams/district * 16 districts * 4 times/year * 7 days/round * 8 USD/head/day) (special outreach service perdiem) Vehicle per team (35 USD/day)	10,997	4	4	4	4	4	43,988	43,988	43,988	43,988	43,988	219,940
Improve vaccine management and administration to attain quality EPI services for children and women in reproductive age groups.													
Training of EPI focal persons on vaccine and cold chain management	Training for 7 days (per zoba) 50 participants (including trainer) Perdiem 35 USD/head including accomodation and food (Hall rent 166USD/day)	23,212		6				-	139,272	-	-	-	139,272
Procurement and installation of 40 Solar Direct Drive (SDD) refrigerators.	SDD (40 SDD *8500 USD) (UNICEF Cost)	340,000			1			-	-	340,000	-	-	340,000
Conduct preventive maintenance of cold chain and regular supervision of immunization service.	DSA for supervisors (3 supervisors* 35 USD/head/day *14 day * 4 times/year* 6 zobas)	8,820	4	4	4	4	4	35,280	35,280	35,280	35,280	35,280	176,400
Strengthen EPI waste disposal procedures and management.													
Procurment and installation of 12 incinerators at community hospitals	(12 incinerators * 35,000USD) including instalations	420,000			1			-	-	420,000	-	-	420,000
Training on health care waste mangement	Training for 5 days (per zoba) * 50HWs (3SUSD)	16,680			6			-	-	100,080	-	-	100,080
Update EPI waste disposal procedure as per WHO recommendation	No Extra cost document review. Gov contribution	-			1			-	-	-	-	-	-
Enhance appropriate notification, documentation and reporting of AEFI													
Training of EPI focal person on AEFI reporting and documentation process	Training for 3 days (per zoba) 60HWs Participants (35 per diem) Conference Package	12,078				6		-	-	-	72,468	-	72,468
Establish vaccine safety advisory committee at national and zoba level	No cost incured Gov Contribution	-				1		-	-	-	-	-	-
Training of vaccine safety advisory committee members	Training for 3 days 15HWs participants (35 per diem)	3,393				1		-	-	-	3,393	-	3,393
Develop printing Adverse Effect Following Immunization training guideline (including distribution)	Printing 1000 guidleines * 12 USD each	12,000			1			-	-	12,000	-	-	12,000
Printing of AEFI reporting tools	Printing 100,000 AEFI reporting tools* .02USD	20,000			1			-	-	20,000	-	-	20,000
To reduce the incidence of zoonotic diseases by routine immunization.													
Conduct routine vaccination	Site visit (per Zone) 6 zones every year 30 people (35 per diem) 30 day mission 6 car rent	37,800	6	6	6	6	6	226,800	226,800	226,800	226,800	226,800	1,134,000
Ensure the quality of vaccines													
Improve the quality of vaccine management & adminstration.	no cost required	-	1					-	-	-	-	-	-
To acquint the society of the use of hygiene.													
Establish EPI waste disposal procedure. Technical assistance	Consultant International for 5 days	5,250		1				-	5,250	-	-	-	5,250
Consenses building workshop	Meeting consensus building Conference Package for 3 days 30 Participants (35 per diem)	6,189		1				-	6,189	-	-	-	6,189
To evaluate the incidence of the disease.													
Strengthen investigation and appropriate reporting system.	no cost required (coordination)	-	1					-	-	-	-	-	-
To facilitate the logistics required.													
Purchase of logistics	Ice box 100 unit @USD500	50,000		1				-	50,000	-	-	-	50,000
	15 Refrigerator @4500usd 6 deep freezer @6800	108,300		1				-	108,300	-	-	-	108,300
	Vaccinnes (Rabies 6000 @ 20 Anthrax 1000 @ 15 Burcella strain 19, 2000 @ 60)	255,000		1				-	255,000	-	-	-	255,000
	Cold chain structure@ 330K + Backup generator 150KW @USD60K	390,000		1				-	390,000	-	-	-	390,000
Immunization								306,068	1,260,079	1,198,148	381,929	306,068	3,452,292

8. National Laboratory System

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing					Total Cost Year					TOTAL
			2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
National Laboratory System													
Formulate the Public Health laboratory policies and strategic plan in such a way that are commensurate with IHR requirements													
Review/update/formulate 5-year public health and animal health laboratory policy and strategic plan 1. Develop Policy and 5 years Strategic plan	2 Consultant International 15 days	23,500	1					23,500	-	-	-	-	23,500
2. Consenses building workshop for 60 participants for 3 days	Workshop Conference Package for 3 days 60 participants (35 per diem)	16,179	1					16,179	-	-	-	-	16,179
3. Printing of the developed document	Printing 100 copies for 100pages	2,500	1					2,500	-	-	-	-	2,500
4. Dissemination workshop at national and zonal level.	Workshop (1 per Zoba) disemination 15 Participants (35 per diem) Conference Package (no lunch) for 3 days	3,444	6					20,664	-	-	-	-	20,664
Establish and launch Quality management systems, manual SOPs, guidelines and quality manuals developed 1. SOP, Manual and Guidelines development * Develop quality management system manual SOPs and Guidelines	2 Consultant International 15 days	23,500	1					23,500	-	-	-	-	23,500
2. Consenses building workshop for 60 participants for 3 days	Workshop 60 participants (35 per diem) Conference Package for 3 days	16,179	1					16,179	-	-	-	-	16,179
3. Printing of the developed document	Printing 100 copies for 100pages	2,500	1					2,500	-	-	-	-	2,500
4. Dissemination workshop at national and zonal level.	Disemination Workshop (1 per Zoba) 15 Participants (35 per diem) Conference Package (no lunch) for 3 days	3,444	6					20,664	-	-	-	-	20,664
Formal linkage between human and animal health Laboratories is set up. 1. Establish multi-sectorial committee with clear TOR. To be noted in both polices (no cost implication)	no cost required	-	1					-	-	-	-	-	-
Human resources for laboratory service strengthened and trainings conducted 1. Conduct in service training of lab Staff on lab techinics on priority diseases 60 People per year for 10 days	Training for 10 days 60 participants (30 visiting) Conference Package	32,950	1					32,950	-	-	-	-	32,950
2. Conduct overseas short courses	1 month program every year 6 per year (3 health, 3 Agriculture) @5000 USD TBC with workforce	5,000	6	6	6	6	6	30,000	30,000	30,000	30,000	30,000	150,000
3. Strengthen ACHS and HAC to develop tailord curriculum (lab equipment, reagents, strangthen molocular biology and establish bioinformatics and supplies will be detailed)	Consultant International for 10 days	8,500		1				-	8,500	-	-	-	8,500
4. Procure lab equipment, reagents and supplies (will be detailed) + 2 Cold chain structure @390K (MoH and MoA)	Procurement to be detailed pending	548,863		1				-	548,863	-	-	-	548,863
5. Hire 2 TA for 15 days including developing training materials	2 Consultant International for 15 days	17,000		1				-	17,000	-	-	-	17,000
6. Train 15 Lab personnels on molocular diagnostic for 10 days (Including beanch works)	Training for 10 days Conference Package (15 Participants)	6,685		1				-	6,685	-	-	-	6,685
7. (Establish diagnostic molocular lab and supplies will be detailed) * Procure required materials	158 863 ERN (1USD=1SERN) See document Establisment of Molucular Lab	10,591		1				-	10,591	-	-	-	10,591
National Laboratory System								188,636	621,639	30,000	30,000	30,000	900,275

9. Real Time Surveillance and
10. Reporting

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing					Total Cost Year					TOTAL
			2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
Real Time Surveillance													
To develop and disseminate an IDSR electronic reporting system with an electronic database													
Establish electronic IDSR reporting system (Database planning meeting/collect forms/report/questionnaires, select a database consultant from local firms, instal/build/configure database example, test functionality with real data, produce final database, import data from existing databases and lists into new system, train staff in-house on database use) 1. Hire TA for 15 days to establish electronic IDSR reporting system (Database planning meeting/collect forms/report/questionnaires) Ø Install/build/configure database example, Ø Test functionality with real data, produce final database, Ø Import data from existing databases and lists into new system	Hire International Consultant for 15 days	11,750	1					11,750	-	-	-	-	11,750
2. Train staff in-house on database use	Training for 3 days Conference Package (20 Participants) Plus workshop part same as meeting above (*2)	2,639	2	2	2	2	2	5,278	5,278	5,278	5,278	5,278	26,390
To conduct regular monitoring and evaluation of IDSR performance with periodic IDSR indicator review													
Conduct supportive supervision to health facilities and subzones, train health personnels regarding IDSR performance indicator to foster their capacity to conduct monitoring activities within their facility 1. Conduct supportive supervision to health facilities and subzones Quarterly 4 people for 10 days	Superv visit per diem 400 car rent 4500 4 times a Year	670	8	8	8	8	8	5,360	5,360	5,360	5,360	5,360	26,800
2. Train health personnels regarding IDSR performance indicator to foster their capacity to conduct monitoring activities within their facility 40 people for 7 days per zone (Similar for animal health personnels)	Training 6 times 40 Participants 7 days this is done both for animal and human heath thus 2 times a year	66,066	2	2	2	2	2	132,132	132,132	132,132	132,132	132,132	660,660
To expand and reinforce community based surveillance in all villages and health facilties and strengthen event based surveillance with rumour logging and monitoring and evaluation of performance.													
Develop guidline for Community Surveillance and event based surveillance in different Ethinic languages, train community surveillance focal people in community surveillance system, develop & duplicate report forms for community base surveillance in different Ethnic languages Ø Review/ develop guidline for Community Surveillance Ø Develop event based surveillance in different Ethinic languages Ø Train community surveillance focal people in community surveillance system Ø Awarness creation for communities 10,000 per year per zoba fro both human and animal Ø Develop & duplicate report forms for community base surveillance in different Ethnic languages (For both animal and human health)	Translate guideline 10USD per page 80 pages 400 copies guidelines 10USD each for printing (*2 for human & animal health)	9,600		1		1		-	9,600	-	9,600	-	19,200
	Conference Package for 3 days 20 people	2,639		1	1	1	1	-	2,639	2,639	2,639	2,639	10,556
	Awareness commettee meeting 200 persons per zone = 6 5 days 120ERN per diem no other items for costs	48,000		1	1	1	1	-	48,000	48,000	48,000	48,000	192,000
	50000 copies one page 1USD = 4 pages	12,500		1	1	1	1	-	12,500	12,500	12,500	12,500	50,000
To establish/strengthen cross-border surveillance with cross-border collaboration with neighbouring jurisdictions.													
Conduct cross-border meeting with neighboring countries once a year for both animal and human health (Travel expenses, DSA)	Meeting 20 Participants Conference Package for 5 days everyting included plus travel 10 International Part (500USD/day + 1000/plane ticket) for both animal and human health (*2)	38,905		1		1		-	38,905	-	38,905	-	77,810
To establish IDSR information sharing including regular and timely weekly epidemiological bulletins													

11. Workforce Development

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing					Total Cost Year					TOTAL
			2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
Workforce Development													
To strengthen the capacity of workforce in epidemiology													
Develop and implement a comprehensive workforce 1. To review thhe workforce strategy of MOH and MOA to quantify the number of workforce need Ø Hire 1 TA to support the review and consultaion between the relevant line ministries and other institutions for 15 days	Consultant International 15 days	11,750	1					11,750	-	-	-	-	11,750
To upgrade the capacity of HH professionals													
Increase the pool of epidemiologists with surveillance skills in all hazards at subnational level 1.Train 40 public health officers in 4 months epidemiology training in ACHS per year	Training 40 participants 4 months curicullum per student USD 5640 (Includes college tuition, accomodation, materials)	225,600		1				-	225,600	-	-	-	225,600
To train 200 veterinary in vet epidemiology													
Develop 4 month Epidemiology course to include a laboratory and veterinary cadres 1. Develop the curriculum of the 4 months of Epidemiology course Ø Train 40 Veterinary science profesionals 4 months epidemiology training in HAC per year	Consultant International 15 days Training 40 participants 4 months curicullum per student USD 5640 (Includes college tuition, accomodation, materials)	237,350		1				-	237,350	-	-	-	237,350
Increase the pool of epidemiologists													
Build up the epidemiology courses 1.Train 12 epidemiologists (MSc) in 5 years	Training Epi 12 Participants per student USD 30 K (overseas study) School fee and stipen logistic (human health) (3 student per year) start 2018	90,000		1	1	1	1	-	90,000	90,000	90,000	90,000	360,000
2. Train 20 animal health epidemiologists in 5 years	Animal 20 Participants per student USD 30 K (overseas study) School fee and stipen logistic (Animal health) 4 students per year	120,000	1	1	1	1	1	120,000	120,000	120,000	120,000	120,000	600,000
Improve the curicullum of Degree & Diploma programs by including 4 month Epidemiology course AH experts design the disease control program scientifically. Ø Review the curriculum to include vetrinary epidemiology in the Vetrinary diploma and Bsc trainings in HAC. TA for 15 days	Consultant International 15 days	11,750		1				-	11,750	-	-	-	11,750
Develop the curiculum for MPH programs in Asmara College of Helath Science Ø Acquiring technical assitance to develop the curriulum for the MPH program	Consultant International 30 days	21,500		1				-	21,500	-	-	-	21,500
Provide in-service training to HCW and Vet profesionals 1. Develop Training materrials	Consultant National 1 month	4,000		1				-	4,000	-	-	-	4,000
2. Training for Trainers	Training 30 participants (2 times in a year) every year 10 days Conference package Special Perdiem USD 35	22,240		2	2	2	2	-	44,480	44,480	44,480	44,480	177,920
3. Training for HCW on EPI hazard concept	Training 50 Participants (10 trainings per year total 500 participants) Conference Package for 10 days Special Perdiem USD 35	36,180	10	10	10	10	10	361,800	361,800	361,800	361,800	361,800	1,809,000
4. Training for Vet profesionals on EPI hazard concept	Training 40 participants (5 times per year) every year Conference Package for 10 days Special perdiem USD 35	29,210	5	5	5	5	5	146,050	146,050	146,050	146,050	146,050	730,250
Workforce Development								639,600	1,262,530	762,330	762,330	762,330	4,189,120

12. Preparedness

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing					Total Cost Year					TOTAL
			2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
Preparedness													
Conduct an integrated all hazard/vulnerability risk and resource mapping.													
Draft mapping proposal	Conference Package (10 Participants for 5 days)	2,485	1					2,485	-	-	-	-	2,485
Recurit international technical assistant for assesment and report writing	1 International Consultant for 14 days	11,100	1					11,100	-	-	-	-	11,100
National recuriment of Assesment team	20 Person team for 10 days to 6 zobas car rent	8,400	1					8,400	-	-	-	-	8,400
Conduct orientation workshop for assesment team members	Conference Package for 2 days 23 Participants (35 per diem)	4,889	1					4,889	-	-	-	-	4,889
Conduct nation wide mapping of risk hazard assesment	Conference Package for 10 days 23 Participants (35 per diem) Car Rent (6)	116,766	1					116,766	-	-	-	-	116,766
Conduct data compiling, analysis and interpretation	Conference Package for 10 days 23 Participants (35 per diem) Car Rent (6)	700	1					700	-	-	-	-	700
Conduct disseminaton workshop	Conference Package for 1 day 50 people	2,233	1					2,233	-	-	-	-	2,233
Print and disseminate the final report	200 copies 40 pages @USD 10	2,000		1				-	2,000	-	-	-	2,000
Finalize the National Multi-hazard Public health emergency preparedness and response plan considering all essentials including EOCs, Community Engagement, Cross border collaboration, multi-sectorial coordination platform, health infrastructure and ensure its													
Establish technical review committee with TOR	Conference Package for 3 days 12 people	1,743		1				-	1,743	-	-	-	1,743
Conduct review sessions of the draft	Conference Package for 5 days 12 Participants	2,849		1				-	2,849	-	-	-	2,849
Recruit international technical assistance	International consultant for 7 days	6,550		1				-	6,550	-	-	-	6,550
Conduct consensus workshop	Conference Package for 3 days 70 people	8,239		1				-	8,239	-	-	-	8,239
Print and disseminate the final report	200 copies (60 pages) @1SUSD	3,000		1				-	3,000	-	-	-	3,000
Review the national health infrastructure for emergency response to consider establishment of permanent infection isolation facilities.													
Develop emergency response policy and guideline	Conference Package for 20 days 4 people	5,488		1				-	5,488	-	-	-	5,488
Recurit technical assistance to develop policy and guideline	International Consultant for 10 days	8,500		1				-	8,500	-	-	-	8,500
Conduct review of the national health infrastructure for emergency response	Supervisor Visit for 10 days 6 people + 3 cars	1,530		1				-	1,530	-	-	-	1,530
Conduct consensus building workshop	Conference Package for 1 day 50 people (special per diem)	2,233		1				-	2,233	-	-	-	2,233
Build response capacity in other sectors, including: the security sector, the MOA through prioritization of the Vet-FETP, FELTP, while ensuring dedicated contingency funds for response and no stock out of critical response stocks and laboratory reagents.													
Develop training guidelines for public health emergency	Conference Package for 7 days 7 people	2,695		1				-	2,695	-	-	-	2,695
International course for masters level Vet-FETP	Course @50,000USD * 4 people	200,000		1	1	1	1	-	200,000	200,000	200,000	200,000	800,000
International course for masters level FELTP	Course @50,000USD * 4 people	200,000		1	1	1	1	-	200,000	200,000	200,000	200,000	800,000
Conduct in country training on response measures of the Vet-FETP	Conference Package for 90 days, 15 people (No hall rent)	47,355	1	1	1	1	1	47,355	47,355	47,355	47,355	47,355	236,775
Conduct in country training on response measures of the FELTP	Conference Package for 90 days, 15 people (No hall rent)3 times a year, each year from 2017	47,355	3	3	3	3	3	142,065	142,065	142,065	142,065	142,065	710,325
Dedicate contigency fund for emergency response	no cost	-	1					-	-	-	-	-	-
Develop list of critical response stocks and laboratory reagents.	3 person(MOH,MOA& MOWLE) for 2 days	-	1					-	-	-	-	-	-
Procure critical response stocks and laboratory reagents.	Covered in other technical areas	-	1					-	-	-	-	-	-
Strengthen existing EPR structures and develop relevant SOPs and review them with regular exercises													
Recrut TA to develop SOPs for public health emergency response	1 International Consultant for 7 days	6,550		1				-	6,550	-	-	-	6,550
Conduct consensus buidling workshop. SOP BB 2018	Conference Package for 2 days 50 Participants (35 per diem)	10,316		1				-	10,316	-	-	-	10,316
Preparedness								335,993	651,113	589,420	589,420	589,420	2,755,366

13. Emergency Response Operations and
14. Linking PH and Security Authorities

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing					Total Cost Year					TOTAL
			2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
Emergency Response Operations													
Ensure dedicated infrasructure for PHEOC at national to Zoba level equiped with relevant ICT facilities and personal to activate emergency response.													
Hire consultant to guide the overall implemntation of PHEOC establisment	1 International Consultant for 14 days	11,100	1					11,100	-	-	-	-	11,100
Design and build 1 standarized EOC (1 national) with its ICT equipments, furnitures		1,000,000		0.5	0.5			-	500,000	500,000	-	-	1,000,000
Ensure the development of SOP, plans and case management guideline in line with IHR all hazards approach													
Hire consultant to guide the development of EOC SOP and the case management guidelines	1 International Consultant for 10 days	8,500		1				-	8,500	-	-	-	8,500
Develop the EOC standard operating procedures and case management guidelines	Conference Package for 5 days 10 Participants (35 per diem)	4,535		1				-	4,535	-	-	-	4,535
Conduct consensus building workshop	Conference Package for 1 day 60 Participants (35 per diem)	8,473		1				-	8,473	-	-	-	8,473
Finalize print and disseminate 100 copies (60 pages)		1,500		1				-	1,500	-	-	-	1,500
Ensure staff are trained in relevant competencies and regular exercises and reviews are conducted													
Training of newly assigned EOC personnel on case management (annual from '18)	Conference Package for 5 days 60 Participants (35 per diem)	23,885		1	1	1	1	-	23,885	23,885	23,885	23,885	95,540
Simulation exercise to all EOC personnels annualy	Simulation @20,000USD	20,000		1	1	1	1	-	20,000	20,000	20,000	20,000	80,000
Conduct quarterly review meeting of EOC personnel	Conference Package for 3 days (20 Participants)	2,639		4	4	4	4	-	10,556	10,556	10,556	10,556	42,224
Conduct monitoring and evaluation of response annually. To all 6 zobas	Superv Visits 15 Participants for 10 days	1,550		6	6	6	6	-	9,300	9,300	9,300	9,300	37,200
Emergency Response Operations								11,100	586,749	563,741	63,741	63,741	1,289,072
Linking Public Health and Security Authorities													
To strengthen multisectoral response, including the capacity to link public health and law enforcement													
Develop MOU between ministries	no cost	-	1					-	-	-	-	-	-
Establish national coordinating office with its all office equipments and IT facilities (7)	1 national and 6 zobas. Each office 2 persons plus printers and computers etc office rent office equipment @ 4,061USD Exluding office building cost or rent and extra special IT facilities	56,854		1				-	56,854	-	-	-	56,854
Establish coordinating office in 5 PoE with its all office equipments and IT facilities	5 PoE. Each office 2 persons plus printers and computers etc office equipment @ 4,061USD Exluding office building cost or rent and extra special IT facilities	40,610		1				-	40,610	-	-	-	40,610
Procure travel safety equipment and train officers, trainers, and educate the community on public health security matters	Procurement + Contingency @150000USD	1,042,824			1			-	-	1,042,824.40	-	-	1,042,824.40
All relevant authorities to have improved timely shared information through an ensured protocol and SOPs													
Hire international consultants to develop a protocol and SOP for collaboration between law enforcement agencies and other sectors	International consultant for 5 days	5,250		1				-	5,250	-	-	-	5,250
Develop guideline for information sharing between ministries	Conference Package for 3 days 10 people	1,519		1				-	1,519	-	-	-	1,519
Conduct consensus building workshop	Conference Package for 1 day 50 people	2,233		1				-	2,233	-	-	-	2,233
Conduct regular simulation exercise on response to disaster or emergencies at national level	Simulation @20,000USD *3 days Conference package for 100 people	71,599		1				-	71,599	-	-	-	71,599
Conduct regular simulation exercise on response to disaster or emergencies at zonal(6 zobas	Simulation every 2 years @20,000USD * 3 days + Conference Package for 50 ppl	65,999		1		1		-	65,999	-	65,999	-	131,998
Conduct training of focal person and sectors	Conference Package for 5 days Annual training for 12 people	2,849		1	1	1	1	-	2,849	2,849	2,849	2,849	11,396
Linking Public Health and Security Authorities								-	246,913	1,045,673	68,848	2,849	1,364,283

15. Medical Countermeasures and Personnel Deployment

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing					Total Cost Year					TOTAL
			2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
Medical Countermeasures and Personnel Deployment													
Develop a formal system for sending and receiving MCM													
Hire international consultants to develop framework, personnel deployment plan, SOPs, and protocols	International Consultant for 10 days	8,500		1				-	8,500	-	-	-	8,500
Conduct consensus building workshop	Conference Package for 1 day 50 people	2,233		1				-	2,233	-	-	-	2,233
Finalize, print and disseminate documents (100 copies) (60 pages)	SOP 8b	1,500		1				-	1,500	-	-	-	1,500
Conduct advocacy meeting at higher level	Conference Package for 2 days 50 people	4,116		1				-	4,116	-	-	-	4,116
Establish intercountry technical committee	Conference Package for 2 days 30 people (special per diem)	6,296		1				-	6,296	-	-	-	6,296
Keep dedicated contingency medical emergency medicines and supplies stockpiles													
Conduct national multisectorial meeting to orient on ensuring mutual cross border interventions	Conference Package for 3 days 60 people (special per diem)	16,179		1				-	16,179	-	-	-	16,179
Develop a roster of qualified public health and medical emergency experts in the country													
Conduct inventory of human resources of public health emergency experts	Conference Package for 5 days 12 people	2,849		1				-	2,849	-	-	-	2,849
Upgrade human resource database through technical assistant	International Consultancy for 7 days	6,550		1				-	6,550	-	-	-	6,550
To evaluate and monitor the performance of MCM													
Develop guidelines for licensing monitoring and evaluating performance	Conference Package for 3 days 50 people	5,999			1			-	-	5,999	-	-	5,999
	Print and dissiminate the guideline 50 copies (60 pages)	750			1			-	-	750	-	-	750
To Elevate the PHARMECOR`s storage facilities for bulk items to the national level with stronger inventory control													
Conduct assesment of the available infrastructure	Superv visit for 5 people/special per diem (6 zobas, 5 days each)	6,300		1		1		-	6,300	-	6,300	-	12,600
Maintenance of the pharmecor infrastruture	Hire 1 engineer. Salary starting 2018 @ approx 1000USD	1,000		1	1	1	1	-	1,000	1,000	1,000	1,000	4,000
	1 national at 4,5 and 6 Zoba at 1Mio USD including Cold chain structure Backup generator USD 300K, 2018	10,800,000		1				-	10,800,000	-	-	-	10,800,000
IT system for 10 national, 4 each zoba conection with EOC 5k instalation, 2018		70,000		1				-	70,000	-	-	-	70,000
IT system for 10 national, 4 each zoba conection with EOC and 1000 permonth		168,000		1	1	1	1	-	168,000	168,000	168,000	168,000	672,000
Office equipment 2018		113,699		0.5	0.5			-	56,849	56,849	-	-	113,699
Transportation, procurement 4 trucks 4.5 tons truck USD 30K, 2 trucks 2018, 2trucks 2020		60,000		1			1	-	60,000	-	-	60,000	120,000
Training 2 times per year start 2018	Conference Package for 5 days 30 Participants (15 per diem)	9,200		2	2	2	2	-	18,400	18,400	18,400	18,400	73,600
Supervisory visit 4 per year	Supervisor Visit 4 people for 10 days (35 per diem)	670		4	4	4	4	-	2,680	2,680	2,680	2,680	10,720
upgrade human resource and the inventory system	Conference Package for 3 days 15 people	2,079		1	1	1	1	-	2,079	2,079	2,079	2,079	8,316
To strenghen the capacity for supply chain management													
Conduct training on supply chain management	Conference Package for 3 days 15 people	2,079		1	1	1	1	-	2,079	2,079	2,079	2,079	8,316
Upgrade the computerized supply chain management	Estimated USD 50,000 with the cosultant	50,000			1			-	-	50,000	-	-	50,000
Develop list of necessary medical equipments, medicines, suplies, lab reagents, List to be obtain. 2018	no cost	-		1				-	-	-	-	-	-
To develop a formal system for sending or receiving MCM health personnel during a public Health emergency from outside Eritrea													
Develop MOU, SOPs and guidelines for formal sending and recieveing MCM health personnel	Conference Package for 10 days 20 people	8,470		1				-	8,470	-	-	-	8,470
Develop of roster of experts on Public emergency	Conference Package for 10 days 50 people	19,180		1				-	19,180	-	-	-	19,180
Medical Countermeasures and Personnel Deployment								-	11,263,260	307,836	200,538	254,238	12,025,873

16. Risk Communication

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing					Total Cost Year					TOTAL
			2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
Risk Communication													
Develop, test and implement an integrated multi-hazard risk communication plan and policy within a national preparedness and response framework													
Hire an inter/national technical assistance	International Consultant for 90 days	60,500			1			-	-	60,500	-	-	60,500
Conduct desk review/ mapping of exisitng policies/ guidelines for risk communication	Conference Pakcage for 3 days 5 people	959		1				-	959	-	-	-	959
Consult with national multi-sectoral HP working group	no cost	-		1				-	-	-	-	-	-
Conduct consensus building WS with 50 (National I)	Conferece Package for 5 days 50 people	9,765		1				-	9,765	-	-	-	9,765
Conduct dissemination WS with 100 (Zoba I)	Conference Package for 5 days 100 people	39,365			1			-	-	39,365	-	-	39,365
Print 1000 copies of each policy and disseminate	Copy @10USD *1000 Copies	10,000		1				-	10,000	-	-	-	10,000
Develop ToR	no cost	-		1				-	-	-	-	-	-
Hire an international technical assistance to review HP policy	International Consultant for 35 days	24,750		1				-	24,750	-	-	-	24,750
Consult with national multi-sectoral HP working group	no cost	-			1			-	-	-	-	-	-
Develop ToR to design rsik communication plan/mapping	International Consultant for 35 days	24,750		1				-	24,750	-	-	-	24,750
Conduct training on the risk communication plan at national level	Conference Package for 5 days 100 people	18,865			1			-	-	18,865	-	-	18,865
Conduct cascade training for 500 pax (DSA for participants, hall rent , stationery, etc)	Conference Package for 5 days 100 people/training (5 trainings every 2 years)	18,865		5		5		-	94,325	-	94,325	-	188,650
Print 1000 copies and disseminate 40 pages (USD 10)		10,000			1			-	-	10,000	-	-	10,000
Integrate risk communications principles that acknowledge community risk perceptions and community participation in development of key messages													
Develop ToR to map existing risk communication capacities	International Consultant for 25 days	18,250		1				-	18,250	-	-	-	18,250
Map exisitng EPR knowledge and capacity	Supervisor visit 12 people (10 per diem)	5,250			1			-	-	5,250	-	-	5,250
Organise study tour to countries with effective risk communication system (DSA, ticket etc) Nairobi, 1 weeks, 10 per visit, 1 per year	10 people/visit once a year @3,000	30,000		1	1	1	1	-	30,000	30,000	30,000	30,000	120,000
Organise Short/ MA course with University of Adelaide, Australia for four Health Promotion Staff (fee, ticket etc) UNICEF potential partner including training 2018 materials development	International consultant 10 days	90,600			1		1	-	-	90,600	-	90,600	181,200
Training for trainer 2018	Conference Package for 10 days 30 people	12,040		1				-	12,040	-	-	12,040	24,080
Training 6 zobas 1 per year	Conference Package for 3 days 50 people (5 special per diem)	6,754		6	6	6	6	-	40,524	40,524	40,524	40,524	162,096
58 sub zoba Training 1 per year	Conference Package for 3 days 30 people + 1 car rent	285,117		1	1	1	1	-	285,117	285,117	285,117	285,117	1,140,468
Review with National multi-sectoral HP WG	No cost				1			-	-	-	-	-	-
Conduct national ToT	Conference Package for 5 days 50 people	9,765		1				-	9,765	-	-	-	9,765
Conduct regional level training for 500 pax	Conference Package for 5 days 100 people/training (5 trainings every 2 years)	18,865		5		5		-	94,325	-	94,325	-	188,650
Develop ToR for mapping exisitng communication networks	International Consultant for 20 days	15,000			1			-	-	15,000	-	-	15,000
Map exisitng structure and capacity	Supervisor visits 12 people 10 days	1,310		1				-	1,310	-	-	-	1,310
Develop ToR for the National/ Zoba/ Sub-Zoba/	No cost	-			1			-	-	-	-	-	-
Community multi-sectoral working group to expand membership	No cost	-			1			-	-	-	-	-	-
Design guidelines to define complementarity of existing networks	Conference Package for 3 days 5 persons	959		1				-	959	-	-	-	959
Further develop Risk Communications policy and SOP capacity in human resources, platforms, and resources to deal with a large scale emergency													
Design ToR for risk communication response - national/sub-national	no cost	-		1				-	-	-	-	-	-

17. Point of Entry (POE)

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing 2017	2018	2019	2020	2021	Total Cost Year 2017	2018	2019	2020	2021	TOTAL
Points of Entry (POE)													
Responding to public health emergenciesoccuring at points of entry, integrated with other PH response plans, covering all relevant sectors													
Develop the national public health emergency contingency plan. 1. Hire 1 consultant (international) to draft	International Consultancy for 10 days	8,500		1				-	8,500	-	-	-	8,500
2. Develop an implementation plan. - Consensus building workshop	Consensus workshop 50 participants (10 visiting) Conference package for 1 day	3,203		1				-	3,203	-	-	-	3,203
Screening, isolation, safe referral and transfer of ill travellers to appropriate medical facilities, with MOU between health authories and facilities for all designated PoEs within the country													
Elaborate/update/develop the SOPs for screening, isolation, safe referral, and transfer of ill travellers. 1. Technical assistance to develop the SOP for screeening isolation, safe referral, and transfer of ill travellers.	International Consultant for 5 days	5,250		1				-	5,250	-	-	-	5,250
	Consensus workshop 40 participants (15 visiting) Conference Package for 2 days	5,206		1				-	5,206	-	-	-	5,206
	Printing 100 copies (50 pages)	1,250		1				-	1,250	-	-	-	1,250
For inspection of conveyances, agriculture programme for vectors control and organize ad hoc simulation exercises													
Strengthen the core capacities (human and institutional capacity) at all designated points of entry 1. Human Capacity assign 4 diploma professional catagorise minimum		44,320	1	2	1			44,320	88,640	44,320	-	-	177,280
2. Develop curriculum for health inspectors for pre and in-service and traing materials	International consultant for 5 days	5,250		1				-	5,250	-	-	-	5,250
3. Short course training on Ships and airplane inspections	Training 25 participants (20 visiting) Conference package for 5 days	9,315		1	1	1	1	-	9,315	9,315	9,315	9,315	37,260
4. Total of 120 trainee over 3year period * health personel, vetrinary, plant, chemical, radiation*	Training for 5 days 40 Participants	7,945		1	1	1		-	7,945	7,945	7,945	-	23,835
5. Hire consultants for each profession (4)	International Consultant 4 (one per professions) 5 days	21,000	1	2	1			21,000	42,000	21,000	-	-	84,000
6. Study tour for 5 people for 1week	5 people, 1 week abroad study at the cost of Pending the cost 7 days @300 per day	10,500		1	1	1	1	-	10,500	10,500	10,500	10,500	42,000
For inspection of conveyances and surveillance for all hazards													
Establish and equip the isolation facilities with relevant equipment and issue at least 2 ambulances/emergency boats for every PHEIC at the POE accordingly. 1. Establish 4 standard Isolation facilities for human, animal, plant and hazardous chemicals for every designated POEs.	Isolation centers each of 6 million nakfa cost. design cost fee 5% of total project cost. Supervision cost 2% of total project total of=ERN 2,400,000	2,240,000		0.2	0.4	0.2	0.2	-	448,000	896,000	448,000	448,000	2,240,000
2. Procure 2 ambulances for each POEs and one emergency boat for two ports.	Approx price of Ambulance @190,000USD and boats @400,000USD	3,120,000		0.3	0.5	0.2		-	936,000	1,560,000	624,000	-	3,120,000
3.Communication wireless set up (6).	Install telephone infrastructure 500,000@one station *4 _telephone apparatus @10,000*4 -fax Machine@ 20,000*5 -internet access @ 50,000* Total= ERN 2,910,000	146,000		1				-	146,000	-	-	-	146,000
4. Procure mobile cards and internet access	4. -mobile card 20 @110ERN person2cards per person running cost - Internet running cost@ 1000*12months	12,293		1	1	1	1	-	12,293	12,293	12,293	12,293	49,172
5. Procure Generator for each of designated PoE (2)	5. Backup generator 150KW @USD60K	120,000		1				-	120,000	-	-	-	120,000

18. Chemical Events

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing					Total Cost Year					TOTAL
			2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
Chemical Events													
Develop policy and guidelines for surveillance and response in place													
Develop policy and strategy and implementation & Dissimination of the policy 1. Expert consultant, survey and appropriate reviews, etc.	Consultant, International 5 days	5,250		1				-	5,250	-	-	-	5,250
	Consensus workshop Conference Package for 2 days 40 Participants (15 visiting)	5,206		1				-	5,206	-	-	-	5,206
	Printing 100 copies (50 pages)	1,250		1				-	1,250	-	-	-	1,250
Establish a national chemical/toxicology unit													
Establish a national toxicology/chemical unit. 1. Recruit one expert consultants for situational analysis and recommendation.	Consultant international, 5 days	5,250		1				-	5,250	-	-	-	5,250
2. Establish a toxicology/chemical unit.	No cost related	-		1				-	-	-	-	-	-
3. Procure standard equipment, supplies and furnitures.	Procurement for office equipment 4 people @ USD 4,061	-		1				-	-	-	-	-	-
4. Train 10 health workers for 3 weeks .	Training 10 participants (35 per diem) Conference package (no lunch) for 3 weeks	16,244		1				-	16,244	-	-	-	16,244
5. Develop community awareness raising program for 5 days	Training 50 participants per Zoba (6 Zoba) Conference Package for 5 days no perdiem	10,465		1	1	1	1	-	10,465	10,465	10,465	10,465	41,860
3. Procure standard equipment, supplies and furniture.	Procurement for office equipment 4 people @60910 ERN (USD 4061)	46,590		1	1	1	1	-	46,590	46,590	46,590	46,590	186,360
Establish a national toxicology/chemical unit. 1. Recruit one expert consultants for situational analysis and recommendation.	International Consultant for 5 days	16,244		1				-	16,244	-	-	-	16,244
Identify hazardous site/substance													
Conduct situational analysis and needs assessment for hazardous substances 1.Recruit one expert consultants for situational analysis and need assessments	International Consultant 4 days	4,600		1				-	4,600	-	-	-	4,600
2. Conduct training for 20 surveyors	Training 20 participants (35 per diem) Conference Package for 10 days no lunch	11,270		1	1	1	1	-	11,270	11,270	11,270	11,270	45,080
Identify adverse effects of chemicals													
1. Conduct assessment of human and institutional capacity for chemicals hazards.	International Cosultant 10 days	8,500		1				-	8,500	-	-	-	8,500
2. Build human and institutional capacity in the management of chemical hazards/events. Train on field work in chemical inventy	Conference Package for 5 days 20 people	8,405		1				-	8,405	-	-	-	8,405
3. Inventry field work 20 participants for 2 weeks	Site visit for 2 weeks for 20 people	11,760		1				-	11,760	-	-	-	11,760
4. Train of 10 participants in management of chemical hazards/events.	Conference Package for 5 days 10 people	2,485		1				-	2,485	-	-	-	2,485
5. To equip one national health facility to manage f chemical hazards/events (atidotes, oxygen, infusions).	Procurement @10000	10,000		1				-	10,000	-	-	-	10,000
Establish a national poison center and waste disposal													
1. Establish a National waste disposal system. Method/facilities for disposing hazardous chemicals. Establish National Poison Control Centre	International Cosultant 5 days	5,250		1				-	5,250	-	-	-	5,250
2. Develop 100 copies of SOPs	Printing 60 pages	1,500		1				-	1,500	-	-	-	1,500
3. Two national sites (dozers for preparing the site, fencing, etc)	estimated 10000USD	10,000		1				-	10,000	-	-	-	10,000
4. One Standard National Poison Control Centre	Total price TBC with clinical services	1,532,000		1	0.09	0.09	0.09	-	1,532,000	144,008	144,008	144,008	1,964,024
Chemical Events								-	1,712,269	212,333	212,333	212,333	2,349,268

19. Radiation Emergencies

Key Activity	SOP / Meetings Description of Cost Assumptions	Unit Cost	Quantity per Year for Costing					Total Cost Year					TOTAL
			2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
Radiation Emergencies													
Ensure opotimum capacity in application of Nuclear Science and technology is in place.													
Develop human capacity to manage a radio-nuclear event 1. Recruit expert consultant for situational analysis and recommendation.	1 International consultant for 10 days	8,500			1			-	-	8,500	-	-	8,500
2. Include radiation emergencies in the Public Health Act and National Emergency Preparedness and Response Plan - Train 20 health professionals for three 3 months and 10 from mining and 10 from relevant Public and Private sectors in the country.	Training 20 participants (35 per diem) Conf Package for 15 days	22,535		1	1	1	1	-	22,535	22,535	22,535	22,535	90,140
To establish a national radio-nuclear/atomic energy/radiation energy safety and security body													
Establish a radio-nuclear/atomic energy/radiation energy safety and security body. -Recruit 2 expert consultant (at least 2 months) for situational analysis and final recommendation on the establishment structure and its main role and responsibilities of its authority of the National atomic energy body.	2 International consultant and Members of Core Team from different responsible sectors of Public and Private instituties/departments. 60 days	82,000			1			-	-	82,000	-	-	82,000
To equip a national radio-nuclear detection unit													
To equip a national radio-nuclear detection unit. Procure equipment, supplies and furniture.	2. Procurement office equipemnt 5 people @60910 ERN (USD 4061)	20,305			1			-	-	20,305	-	-	20,305
Ensure all health professional actively engaged in clinical practice using radiation energy in diagnosis and treatment of diseases have the maximum knowledge and skill required.													
Health Professional practicing in application of radiation energy in Public Health should have the minimum requirement to practice responsibly and professionaly specially Medical Physicist (M.Phil plus 2 years residency program), Radiographer (B.Sc), Radiology (M.D) full specialization in diagnostic radiology, Radiation or Medical Oncologisty (M.D) with perfect clinical residency program accomplished and Nurses (B.Sc) together with other general practitioners in the field.stablm), Radiographer (B.Sc), Radiology (M.D) full specialization in diagnostic radiology, Radiation or Medical Oncologisty (M.D) with perfect clinical residency program accomplished and Nurses (B.Sc) together with other general practitioners in the field.sta	Train 10 health workers. 1 Medical Physicist (looking for residency clinical training), 3 Radiographers (looking for professional on job training), 3 Oncologists (looking for Professional training for refreshment and upgrading their skill and professional exposure) and 3 Nurses (looking for professional on job training) 10 participants, 7 days	3,451		1	1	1	1	-	3,451	3,451	3,451	3,451	13,804
Ensure continouse Professional training and meeting participation with/at international Professional Organization actively exercising in application of radiation energy.													
National Professionals exercising actively in the field of application of radiation energy at different sectors of the country whether Public or Private should have the needed exposure outside the country at highly equiped host institutes/countries.	Study tour 6 people from all the national sectors of the country involved in using radiation energy in Public and enviromental aspects at the center of International Atomic Eenergy Agency, Vienna, Austria or other regional institues in Ghana, Egypt or SouthAfrica. for (2 weeks). 5000 per each + USD 300 per day per student 7 days	42,600			1	1	1	-	-	42,600	42,600	42,600	127,800
Ensure radiation safety and security effective management program is in place.													
Develop radiation safety/security QA/QC management and Implementation Program together with a system of continous evaluation and recording of results. 1. The National atomic energy body/department developes QA/QC standards for proper management and implementation of the radiatin safety and security process in all the sectors of the country using natural and/or man made radioactive source of radiation energy.	1. Training of 5 staff in management of QA/QC of radiation safety program 2. Procure radiation exposure measurements (5 for each - gamma source counters, enviromental photon and particle dosimeters and occupational/public surviometer) for all the sectors for the purpose of proper management of radiation sources in public and occupational hazards.	150,000		0.2	0.4	0.2	0.2	-	30,000	60,000	30,000	30,000	150,000
Ensure effective Procurement of all radiation equipment, supplies and compatable furnitures are made and conserved.													
Procure radiation energy equipments and facilities for different sectors of the country actively engaged in the peacefull use of radiaton source for diagnosis and treatment in Public Health, Food and Agriculture, Mining and National land/sea control Agency together with other private sectors in the nation.Establish a radio-nuclear detection unit. 1. Procure diagnostic radiology and radiation therapy equipments.	2. 5 Digital X-ray machines, 1 CT scan ,1 MRI Scanner. 15 Photon and electron 0.6cc ionization chamber and small field 0.3cc ionization chamber dosimeters. 5 TLDs and 50 OSLDs personal dosimeter batches. 5 Surviometers, 5 Geiger Muller counters and Other Public and enviromental gamma source of radiation exposure measuring devices/dosimeters.	5,000,000		0.2	0.6	0.2		-	1,000,000	3,000,000	1,000,000	-	5,000,000
Radiation Emergencies								-	1,055,986	3,239,391	1,098,586	98,586	5,492,549