Republic of Liberia

Joint National Action Plan for Health Security (NAPHS)

2018 – 2022

Foreword

The unprecedented Ebola Virus Disease (EVD) outbreak that occurred in 2014-2015 continues to remind us of the urgency to establish adequate capacities for preparedness, detection and response to public threats and events in line with the International Health Regulations (IHR 2005) requirements. Strengthening the IHR core capacities and having strong health system will protect lives and increase resilience of the Liberian people to threats of epidemics and disasters.
This National Action Plan for Health Security (NAPHS) developed through a consultative and multi-sectoral engagement is a tool for the government to comprehensively address the threats to public health security in Liberia.

The purpose of Liberia's NAPHS (2018-2022) is to prevent, detect and respond to public health threats, prevent international spread of epidemic prone diseases and promote multi-sectoral and multi-disciplinary coordination and collaboration in the context of one health. The plan complements other national strategies including the investment plan for building a resilient health system to serve as an instrument for increased partnership and multi-sectoral collaboration. It will continue to maintain an active engagement among the relevant sectors to ensure consistent and coordinated response in the event of epidemics and disasters. Collaboration between human and animal health and the Environment Protection Agency (EPA) is important because most epidemics arise from the interface between human and animal health and the environment.

The NAPHS will be implemented under auspices of the one health framework with technical oversight from the Ministries of Health and Agriculture, the National Public Health Institute of Liberia (NPHIL) and the Environment Protection Agency (EPA). Successful implementation of the NAPHS will significantly contribute to improve national health security and attainment of the health-related Sustainable Development Goals (SDGs). The government of Liberia calls upon line Ministries, partners and community to support implementation of this plan.

The government of Liberia reaffirms its commitment to protect the health of its people by working together with partners, the private sector and the community to fully implement this plan.

Hon. Dr. Wilhelmina S. Jallah
Ministry of Health
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Acknowledgement

The Ministry of Health (MOH) and the National Public Institute of Liberia (NPHIL) would like to recognize the commitment of the government of Liberia for the relentless efforts to prevent and protect its people from disease outbreaks and disasters. The leadership demonstrated by the whole-of-government response to the EVD outbreak, and the subsequent diligence to conduct the JEE served as catalyst and created environment for development of the NAPHS.

I would like to sincerely thank all those who tirelessly contributed to the successful development of this plan. Sincere thanks and appreciation to senior officials and professionals from the different line Ministries and partners for the dedication and hard work exerted towards this noble task.
The leadership of the MOH and NPHIL in steering this process is much valued and commendable.

Hon. Tolbert Nyenswah
Director General,
National Public Health Institute of Liberia

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Acronyms

AAR	After Action Review
AMR	Antimicrobial Resistance
AU	Africa Union
CDC	Centers for Disease Control and Prevention (United States of America)
CHT	County Health Team
EAT	External Assessment Team
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
EPT	Emerging Pandemics Threats
ESIA	Environmental and Social Impact Assessment
EVD	Ebola Virus Disease
FDA	Forestry Development Agency
FELTP	Field Epidemiological Training Program
GAVI	Global Alliance for Vaccines and Immunization
GDP	Gross Domestic Product
GHSA	Global Health Security Agenda
GOL	Government of Liberia
IHR	International Health Regulation
IMC	International Medical Corps
IMS	Incident Management Center
IOM	International Organization of Migration
IPC	Infection Prevention and Control
JEE	Joint External Evaluation
LDHS	Liberia Demographic and Health Survey
LMDC	Liberia Medical and Dental Council
MDG	Millennium Development Goal
MOA	Ministry of Agriculture
MOH	Ministry of Health
NAPHS	National Action Plan for Health Security
NGO	Non-Government Organization
NPHIL	National Public Health Institute of Liberia
OH	One Health
OHCP	One Health Coordination Platform
OIE	World Organisation for Animal Health
PH	Public Health

PHEIC	Public Health Events of International Concern
PIH	Partners in Health
PoE	Port of Entry
PPR	Peste des Petits Ruminants
PVS	Performance of Veterinary Services
REDISSE	Regional Disease Surveillance Systems Enhancement
SDGs	Sustainable Development Goals
SPINAP	Support Programme for Integrated National Action Plans for Avian and Human Influenza
SQS	Safety Quality Systems
U5MR	Under five Mortality Rate
UHC	Universal Health Coverage
USAID	United States Agency for International Development
USD	United States Dollar
VACNADA	Control of trans-boundary animal diseases in Africa
Vet-Gov	Reinforcing Veterinary Governance
VS	Veterinary Services
WHA	World Health Assembly
WHO	World Health Organization

EXECUTIVE SUMMARY

With the adoption of IHR (2005) Liberia has been reporting Public Health Events of International Concern (PHEIC) to the World Health Organization (WHO). One such event was the unprecedented outbreak of Ebola Virus Disease (EVD) in 2014. The IHR (2005) confers obligations to Member States to annually self-report the progress of the implementation to the World Health Assembly (WHA). Following the EVD outbreak, the WHA recommended countries to shift from exclusive self-assessment to a strategy of all-inclusive internal assessment and Joint External Evaluation (JEE) followed by the development and implementation of a National Action Plan for Public Health Security (NAPHS).

In July 2016, Liberia conducted a self-assessment of the IHR core capacities using the WHO assessment tool followed by the Joint External Evaluation (JEE) from 5th- 9th September of the same year. Liberia was the first country in West Africa and the fourth in the African Region to conduct the JEE. A multi-sectoral team of experts from Liberia and an External Assessment Team (EAT) objectively assessed all the 19 technical areas using the IHR JEE tool. The assessment team then participated in a facilitated discussion to reach a consensus on Liberia's current strengths, areas which needed strengthening and priority actions. Based on available evidence, each technical area was then awarded a final score.

The JEE findings demonstrated that progress had been made during the EVD outbreak in some technical areas and identified gaps in others. Of the 48 indicators assessed, 11 (22.9%) were rated *Green* (Demonstrated/Sustainable Capacity), 26 (54.2%) *Yellow*, (Limited/Developed Capacity), and 11 (22.9%) *Red* (No Capacity).

Following the JEE report, the Ministry of Health (MOH) and the National Public Health Institute of Liberia (NPHIL) with the support of partners undertook several initiatives to address some of the identified gaps and weaknesses. In June 2017, the Government of Liberia started the process of developing the NAPHS based on the JEE recommendations. The process was led by the NPHIL and the MOH and involved key government sectors and partners.

In October 2017, a workshop involving representatives from different line Ministries and institutions was held to review recommendations from the JEE report, prioritize realistic interventions for each of the 19 technical areas, and cost the agreed interventions. Subject matter experts reviewed interventions for each technical area before presentation and discussion in a plenary. The workshop provided opportunity for transparent discussions, multi-sectoral participation and national ownership.

Adequate implementation of the NAPHS is expected to reduce morbidity, mortality, disability, and socio-economic disruptions due to public health threats and events, and to contribute to the

attainment of the health-related Sustainable Development Goals (SDG Goal 3[1]). The plan will improve health security through strengthening and sustaining Liberia's capacity to:

a) Prevent outbreaks and other health emergencies;
b) Promptly detect and confirm outbreaks;
c) Respond to and recover from the adverse effects of outbreaks and health emergencies.

The plan aligns all health security interventions currently implemented through the Global Health Security Agenda (GHSA), Regional Disease Surveillance Systems Enhancement (REDISSE) and other initiatives through the One Health approach and broader health systems strengthening with whole-of-government and whole-of-society approaches.

The plan takes into account a set of guiding principles and core values such as country ownership and leadership; community participation; gender and human rights principles, accountability, equity in access to services; active partnerships; fostering inter-sectoral and multi-sectoral collaboration; evidence-led planning; transparency and resilience.

This is a five (5)-year plan (2018 – 2022) with 19 key technical areas under four core categories; *Prevent*, *Detect*, *Respond*, and *Other IHR-related hazards and Points of Entry (PoE)*. The proposed interventions will cost a total of **US$ 154,948,676**. The major category costs are reflected as follows: Detect (US$ 101,108,705), Prevent (US$ 24,771,843), Respond (US$ 21,141,244), and Other IHR related hazards and Points of Entry at (US$ 7,370,885).

The main cost drivers of the NAPHS:

Core Component	Cost Drivers
Prevent	• Food Safety • Zoonotic diseases • IHR coordination, Communication and Advocacy
Detect	• Workforce development • Real time surveillance • National Laboratory system
Respond	• Preparedness • Linking public health and security authorities • Risk Communication
Other IHR-related hazards and Points of Entry	• Chemical events • Radiation emergencies

Maping of existing and potential domestic and external financing will be done to identify potential support for the delivery of the plan.

[1] Sustainable Development Goal (SDG) 3: "Ensure healthy lives and promote well-being for all at all ages")

1. BACKGROUND

1.1. Geography, Political and Socioeconomic Context

Liberia is on the West African coast and lies between 6.4281° N, 9.4295° W, with a 62 kilometre coast line and bordered by Sierra Leone to the west, Guinea to the north and Côte d Ivoire to the east, covering an area of 111,369 square kilometres (43,000 sq. miles). The population estimate for 2016 puts the population of size of Liberia at 4.616 million.[2] Administratively, Liberia is divided into fifteen counties that are further subdivided into administrative clans headed by chiefs, and 92 health delivery districts.

Figure 1. Map of Liberia[3]

Liberia has three branches of the Government: Executive, Legislature, and Judiciary.
Liberia is a low-income country with a Gross Domestic Product (GDP) per capita of USD 457.9 in 2015 and with 64% of the population living below the poverty line (live on less than $US2.00

[2] Source: World Bank, 2016 from https://data.worldbank.org/country/liberia
[3] Source: UNDP, 2014 from http://www.un.org/Depts/Cartographic/map/profile/liberia.pdf

a day) and approximately 48% below the extreme poverty[4] (earning below $1.90 per day in addition to other deprivation).

Indicators	Status
Geographic size	111,369 Square Kilometers
Annual rainfall	4,000 mm (one of the highest in the world)
Natural Resources	Iron ore, rubber, timber, diamonds and Gold
Founded	July 26, 1847
Executive	President: George Manneh Weah
Legislature	Bicameral (Senate and House of Representatives)
Gross Domestic Product	USD 457.9 (World Bank, 2016)
Population living on less than one (1) dollar a day	64% (World Bank, 2016)
Population	3,476,608 (32% in Monrovia, 2008 Census)
Population growth rate	2.1% (Census 2008)
Life expectancy (Male and Female)	51.6 and 53.9 (Census 2008)
Infant Mortality rate	54/1000 (DHS 2013)
Under five mortality rate	94/1000 (DHS 2013)
Maternal mortality rate	1,072/100,000
Institutional and skilled birth	40.9% (MOH Annual report 2017)
Access to improved drinking water	73% (DHS 2013)
Access to adequate sanitation	42% (DHS 2013)
HIV sero prevalence	1.9% (DHS 2017)
Vaccination coverage rate (fully immunized)	55% (2013)
Net enrolment primary school	38.8% (DHS 2013)

[4] United Nations. "Report of the World Summit for Social Development"

Prior to the Ebola Virus Disease (EVD) outbreak in mid-2014, Liberia was experiencing a period of rapid economic growth at an estimated 8.1 percent (Central Bank of Liberia Annual Report, 2013[5]). With the EVD outbreak and the cascading effects on every sector in the country the economic growth suffered a 5% setback. Additionally, the global economic recession coupled with the dramatic decline in commodity exports, specifically rubber and iron ore, in combination with the devastating impact of the EVD outbreak has weakened Liberia's economy.

The impacts of the EVD outbreak in the country spread far beyond the capacity of the health system culminating in a multidimensional socio-economic crisis, exposing entrenched vulnerabilities in the delivery of essential services. The greatest impact was on the poor who already had low income.

Although some progress has been made to address basic socio-cultural issues, gender inequality continues to be a major challenge with a high prevalence of sexual and gender-based violence and low female education attainment.

The Presidential and Legislative elections were successfully conducted in 2017 and election re-run was conducted on 26th December 2017. The country witnessed a smooth transition of power from an elected government to another culminating in the inauguration of the new government on 22nd January 2018.

Comprehensive economic development continues to be hampered by the slow pace of decentralization, limited employment opportunities, lack of critical infrastructure (including roads) and the low capacity of local institutions. These are key national priorities to be tackled through the national development agenda.

1.2. Burden of Recent Public Health Events in Liberia

Events threatening health security in Liberia range from zoonotic diseases to food insecurity and risks of diseases importation. In recent years, such events have contributed to significant morbidity and mortality among humans and animals. The devastating 2015-2016 EVD outbreak, which originated from a zoonotic event in Guinea, resulted in 10,678 cases and 4,810 deaths in Liberia.[6]

In October 2017, a chemical spill from a mining company contaminated a creek used for cooking, drinking and bathing by 1 000 inhabitants of Bong County (Sayweh town, Kokoya District) where thirty-six people fell ill.[7] Outbreaks of *Peste des petit ruminants* repeatedly affect sheep and goat populations and thus challenge food security, with a 2015 outbreak resulting in 2,000 livestock deaths across Nimba and Lofa Counties.[8]

[5] Central Bank of Liberia Annual Report, 2013
[6] https://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html
[7] Liberia IDSR Epidemiology Bulletin 2017 Epi Week 39 (September 25 – October 1, 2017)
[8] http://allafrica.com/stories/201507200995.html

1.3. Institutional Context by Sector

1.3.1. Human Health Sector

There are three tiers of health service delivery in Liberia: tertiary, secondary and primary care. The Minstry of Health (MOH) is headed by a Minister and supported by three Deputies (Chief Medical Officer; Administration; Planning and Research). Different departments are headed by directors each with a different bureau. The heads of health in the county and districts levels are the County Health Officer and District Health Officer respectively.

With lessons learned from the EVD outbreak, the government of Liberia established the National Public Health Institute of Liberia (NPHIL)[9] with support of partners to provide expert advice on the causes of death and disability to the MOH, decision makers, County Health Teams (CHTs) and the public, to implement epidemic prevention and control measures. NPHIL collaborates with the MOH and strengthens the existing infection prevention and control efforts, laboratories, surveillance, infectious disease control, public health capacity building, response to outbreaks, and monitoring of diseases with epidemic potential.

Prior to the EVD crisis, Liberia's health outcomes had been improving steadily since the end of the second civil war in 2003. Figures from the 2013 Liberia Demographic Health Survey (LDHS) showed a 15 percent decline in the under-fives mortality rate (U5MR) and a corresponding decline in two subset indicators of U5MR, in the 10-year period prior to the survey. By 2012, Liberia was among the first countries in Sub-Saharan Africa to achieve its Millennium Development Goals (MDG) target of reducing U5MR to less than one-third of its 1990 level (as of 2015, U5MR was estimated at 70 per 1,000 live births compared to 255 in 1990). However, the EVD crisis led to a devastation of the already fragile healthcare system in Liberia and severely constrained the ability of the Government of Liberia (GOL) to deliver key social services, including basic and secondary health services, thereby leading to many preventable deaths. For example, measles vaccination rates dropped from about 78% in January 2014 to 45% in January 2015. Similarly, health facility deliveries decreased from 65% to 28%, while deliveries attended by skilled providers dropped from 61% to 31%. Fortunately, steady progress is being registered in this area with institutional and skilled birth attendance reported at 40.9%[10] by end of 2017.

The MOH with support of partners conducted the health sector Service Availability Readiness Assessment (SARA) in 2016. Among the main findings, the capacity for health facilities to provide health services measured by general service index is 59%; meaning that 1 out of 2 health facilities

[9] NPHIL is one the priorities of the Investment Plan for Building a resilient health system (2015-2021)
[10] HMIS 2017

is ready to provide health services. This may have implications on the health systems and the ability to rapidly detect and respond to public health threats.

The 2016 Joint External Evaluation (JEE) showed significant improvements in the national surveillance systems post-EVD crisis, with country-wide coverage on the human health aspect, and the establishment of a robust Emergency Operations Centre (EOC) and Incident Management System (IMS) at the national and sub-national levels. However, key weaknesses continue to exist including reported challenges with the community level surveillance structure; weak national laboratory network, quality standards and management system. There is a shortage of a multidisciplinary workforce to implement the International Health Regulations (IHR) core capacities requirements; and absence of a multi-hazard National Public Health Emergency Preparedness and Response Plan. Overall, the assessment report emphasized an urgent need to strengthen and sustain a multidisciplinary coordination and communication mechanism for the successful implementation of the IHR core capacities.

1.3.2. Animal Health Sector

Liberia faces major gaps in Veterinary Services (VS) which are still critically understaffed and affecting the overall capacity to detect and manage animal diseases and address immediate and future challenges of a growing domestic and wildlife animal population. Before 2013, the country had one veterinarian, but there was no structured surveillance system or laboratory diagnostic capacity and, therefore, the prevalence of animal diseases cannot be ascertained. Diseases present in neighbouring countries were deemed to be present in Liberia. Since then, various externally funded programs have supported Liberia to implement some programs that include the Support Programme for Integrated National Action Plans for Avian and Human Influenza (SPINAP) Avian flu 2007/2011; the Control of trans-boundary animal diseases in Africa (VACNADA) with a massive vaccination campaign against *Peste des Petits Ruminants* (PPR); the reinforcing Veterinary governance in Africa Program (Vet-Gov) with activities on modernization of veterinary legislation; and currently the USAID financed Emerging Pandemics Threats Program (EPT2). The country underwent a World Organisation for Animal Health (OIE) Performance of Veterinary Services (OIE - PVS) pathway GAP Analysis in the summer of 2016 to provide a solid basis for a stepwise holistic strengthening of the Liberia Veterinary Services.

1.3.3. Agriculture, Forestry and Fishery Sector

The Department of Animal Health Services at the Ministry of Agriculture (MOA) regulates and manages livestock and oversees Veterinary Services (VS). The Forestry Development Authority (FDA) oversees the management of wildlife resources, parks, and timber resources. Both organizations are under-resourced and have limited capacity for addressing animal health disease and other issues. There is one veterinarian at the MOA and none at the FDA. In addition there is no veterinary law and livestock policy, professional association or system to report and practice the good veterinary governance. Neither the MOA nor FDA have active surveillance system, a

fully functioning laboratory, or the capacity to readily respond to a zoonotic outbreak, as evidenced by the delayed response to the ongoing PPR outbreak.

1.3.4. Environmental Protection Agency

The Environmental Protection Agency (EPA) is participating in the One Health platform to address environmental health, tapping into the Agency's mandate to also regulate and monitor the importation, handling, and usage of chemicals. The agency is currently using international conventions (Basel Convention,[11] Minamata Convention on Mercury,[12] etc.) as a baseline for monitoring and enforcing the usage of chemicals, ozone depleting materials, and pesticides. The EPA is developing guidelines and regulations in line with the international instruments for all chemicals and chemical-related materials. The EPA also has a partial national database of chemicals imported and used in the country and efforts are underway to update the database.

Additionally, the EPA has some instruments that include the Environmental Protection and Management Law of 2003 and the Environmental and Social Impact Assessment (ESIA) to regulate the use of chemicals. The ESIA is a process established by the Agency to bring into compliance all individuals, institutions, and companies using chemicals (including fertilizers) and pesticides that can have an impact on the environment.

1.4 IHR and Other Complementary Assessments

Liberia is a signatory to the International Health Regulations (2005) and is obligated to build capacities to detect, prevent and respond to national, regional and international public health risks, including infectious disease threats, and chemical and radiological events. Until 2015, Liberia has been assessing the progress of development of its IHR (2005) core capacities self-reporting to the WHA annually.

After the recommendation by the IHR Review Committee to countries to shift to voluntary external evaluation, Liberia became the first West African country to conduct its national integrated public health risk assessment. In July 2016, Liberia conducted the IHR self-assessment followed by the voluntary JEE of core capacities in September of the same year. The JEE findings show that although there has been significant progress, gaps still exist in key core technical areas. Out of the 48 indicators assessed, 11 (22.9%) were rated Green (Demonstrated/sustainable Capacity), 26 (54.2%) Yellow, (Limited/Developed capacity), and 11 (22.9%) Red (No capacity). Liberia had no score of 5 for sustainable capacity, with most of the scores between limited to developed capacity.

[11] The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
[12] Global treaty to protect human health and the environment from the adverse effects of mercury

1.3.5. Summary of Best Practices of IHR JEE Core Capacity

- There is strong political will to develop IHR capacities by taking forward a multi-sectoral health systems approach.
- There are strong partnerships and stakeholder involvement at sub-national, national, regional and global levels.
- The country has made significant progress post-Ebola in all domains of human/public health.
- There is a robust surveillance system with country-wide coverage on the human side.
- The foundation for the Field Epidemiology Training Programme (FETP) has been set in collaboration with the US Centers for Disease Control and Prevention (CDC) and the Africa Field Epidemiology Network-AFENET
- Robust Emergency Operations Centers (EOCs) and Incident Management System (IMS) have been established at national and intermediate levels.
- The country has a capable vaccine delivery system in the human health sector to deliver mass vaccinations if the need arises.
- The lessons for linking public health and security authorities in Liberia are commendable.
- There is a robust experience with deployment of medical countermeasures and personnel deployment and a strong foundation for infection prevention control (IPC) practices that has been set up at health facilities through the safety quality systems (SQS) training programme.

1.3.6. Key Areas for Improvement

- Liberia is urged to revise laws and legislation in the context of IHR and One Health, for example, the 1976 public health act.
- Key policies and strategies that are in draft form should be quickly finalized with relevant national stakeholders.
- In the context of One Health, the animal health sector needs additional efforts and interventions.
- Liberia's IHR Focal Point and the organization for animal health (OIE) focal point (which is still an individual and not an organizational set up or centre) should be made a centre and provided with the relevant resources (information and communication technology, human, logistical and financial) to facilitate their reporting functions to WHO and or OIE and to be accessible on a 24 hour and 7 day basis (24/7).
- Liberia should develop a multi-hazard National Public Health (PH) emergency preparedness and response plan. The National PH Emergency Preparedness and Response Plan should be integrated with the points of entry (POEs) emergency plans. Moreover, IHR-compliant air and sea plans should also be under the umbrella of this plan. In addition cross-border collaboration/initiatives should be addressed during the development of the Multi-hazard PH Emergency Preparedness and Response Plan.

- It will be important to strengthen laboratory capacity and networks including supply chain systems, and to establish internal quality control and external quality assurance systems.
- Antimicrobial resistance detection, mitigation and stewardship strategies and plans are urgently needed and should be addressed using a One Health approach with close collaboration of all the relevant sectors, including agriculture and the FDA.
- The country needs to establish strategies for dealing with food safety.
- Finally, but not least, there is a need to create a budget line for IHR and to allocate funding for IHR core capacity building from domestic and international sources.

1.3.7. Summary of IHR JEE Report

The allocation of scores is based on best available evidence and reflects group consensus.[13]

Capacities	Indicators	Score
National Legislation, Policy and Financing	P.1.1 Legislation, laws, regulations, administrative requirements, policies or other	**2**
	P.1.2 The State can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance	**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	**3**
Antimicrobial Resistance	P.3.1 Antimicrobial resistance (AMR) detection	**1**
	P.3.2 Surveillance of infections caused by AMR pathogens	**1**
	P.3.3 Health-care-associated infection (HCAI) prevention and control	**2**
	P.3.4 Antimicrobial stewardship activities	**1**
Zoonotic Diseases	P.4.1 Surveillance systems in place for priority zoonotic	**2**
	P.4.2 Veterinary or animal health workforce	**2**
	P.4.3 Mechanisms for responding to zoonosis and potential zoonosis is established and functional	**2**
Food Safety	P.5.1 Mechanisms for multi-sectoral collaboration are established to ensure rapid	**1**
Biosafety and Biosecurity	P.6.1 Whole-of-government biosafety and biosecurity system is in place for human,	**2**
	P.6.2 Biosafety and biosecurity training and practices	**2**
Immunization	P.7.1 Vaccine coverage (measles) as part of national programme	**3**
	P.7.2 National vaccine access and delivery	**4**
National Laboratory System	D.1.1 Laboratory testing for detection of priority diseases	**2**
	D.1.2 Specimen referral and transport system	**3**
	D.1.3 Effective modern point-of-care and laboratory-based diagnostics	**2**
	D.1.4 Laboratory quality system	**1**
	D.2.1 Indicator- and event-based surveillance systems	**4**

[13] Joint External Evaluation of IHR Core Capacities of the Republic of Liberia http://www.who.int/ihr/publications/WHO-WHE-CPI-2017.23/en/

Capacities	Indicators	Score
Real Time Surveillance	D.2.2 Interoperable, 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 available to implement IHR core capacity	**1**
	D.4.2 FETP1 or other applied epidemiology training programme in place	**3**
	D.4.3 Workforce strategy	**2**
Preparedness	R.1.1 National multi-hazard public health emergency preparedness and response	**1**
	R.1.2 Priority public health risks and resources are mapped and utilized.	**2**
Emergency Response Operations	R.2.1 Capacity to activate emergency operations	**3**
	R.2.2 EOC operating procedures and plans	**4**
	R.2.3 Emergency operations programme	**4**
	R.2.4 Case-management procedures are implemented for IHR-relevant	**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	**4**
Medical Countermeasures and Personnel Ceployment	R.4.1 System is in place for sending and receiving medical countermeasures during	**4**
	R.4.2 System is in place for sending and receiving health personnel during a public	**4**
Risk Communication	R.5.1 Risk communication systems (plans, mechanisms, etc.)	**3**
	R.5.2 Internal and partner communication and coordination	**4**
	R.5.3 Public communication	**4**
	R.5.4 Communication engagement with affected communities	**2**
	R.5.5 Dynamic listening and rumour management	**3**
Points of Entry	POE.1 Routine capacities are established at points of entry	**2**
	POE.2 Effective public health response at points of entry	**1**
Chemical Events	CE.1 Mechanisms are established and functioning for detecting and responding to	**1**
	CE.2 Enabling environment is in place for management of chemical events	**1**

Capacities	Indicators	Score
Radiation Emergencies	RE.1 Mechanisms are established and functioning for detecting and responding to	**1**
	RE.2 Enabling environment is in place for management of radiation	**1**

1.4. Key Elements of NAPHS Planning

The planning of the NAPHS involved the following:

- Reference to legally binding frameworks such as the National Health Investment Plan for building a resilient health system (2015-2021), IHR, AMR situational Analysis, National Strategic Plans, and others;
- Country-led process; with MOH/NPHIL taking leadership in collaboration with all relevant partners;
- Multisectoral participation and Subject Matter Experts for technical Areas;
- Involvement of the Ministry of Finance and parliamentarians from the start;
- Consideration of all known assessment results that inform health security issues, such as JEE, AAR, SimEx, GHSA, national integrated public health risk assessment report, 2016, etc.;
- Aligning of the NAPHS with existing activities and initiatives in human and animal health and the environment, as well as other relevant plans to generate synergies and avoid duplication of effort;
- Costing of the NAPHS;
- Aligning the costed NAPHS with the national budget cycle to ensure both domestic and external funding;
- Formal endorsement and launch of the NAPHS to demonstrate national ownership and stewardship as well as strong partnership and collaboration among all key actors.

1.5. Meeting for the Development of the NAPHS

There was a three-day (October 23-25, 2017) national action planning workshop conducted in Buchanan, Grand Bassa County. Participants were technicians from line Ministries and Agencies. They included:

- National Public Health Institute
- Ministry of Health
- Ministry of Agriculture
- Ministry of Education
- Forestry Development Authority
- Environmental Protection Agency
- Ministry of Internal Affairs (National Disaster Management Agency)
- Ministry of Foreign Affairs
- Ministry of Commerce and Industry

- Ministry of Defense
- Ministry of Justice (LNP, Fire Service, LIS)
- University of Liberia Medical College
- One Health Coordination Platform
- Development Institutions & Partners / Donor(s), including WHO, US CDC, and USAID

2. VISION, MISSION, AND OBJECTIVES OF THE PLAN

2.1. Vision

A resilient nation able to promptly prevent, detect, and effectively respond to public health threats to protect the Liberian population (Human, animal and environment) and mitigate against attributable impacts on the economy.

2.2. Mission

A nation that has attained and sustained all the minimum IHR (2005) core capacities and attained the Sustainable Development Goal (SDG) 3 targets.

2.3. Goal

To reduce morbidity, mortality, disability and socio-economic disruptions due to public health threats and contributes to attainment of the SDG 3 targets.

2.4. Specific Objectives

The specific objectives are to:

1. Ensure universal access to safe and quality health services through improved capacity of the one health network to detect, prevent and promptly respond to public health threats and events.
2. Ensure a robust health emergency risk management system aligned with One Health appraoch.
3. Facilitate an enabling environment and restoring trust in the whole-of-society approach to provide services including community engagement, improving leadership, governance and accountable management systems.
4. Strengthen and sustain the national capacity to prevent outbreaks and other health emergencies.
5. Strengthen and sustain the national capacity to promptly detect and confirm outbreaks.
6. Strengthen and sustain the national capacity to promptly respond to and recover from the negative effects of outbreaks and health emergencies.
7. Strengthen and retain One Health workforce.
8. Map existing and potential domestic and external financing to support the delivery of the national action plan.
9. Strengthen institutional framework to support Health Security and one health implementation.

2.5. Guiding Principles and Core Values

The principles and core values of this plan is guided by country ownership and active partnership through:

- **Cooperative planning** to ensure alignment to national and international plans and obligations;
- **Community participation** with the involvement of communities, civil society and the private sector;
- **Gender and human rights principles** that ensure incorporation of gender equity and human rights perspectives into policies and programmes;
- **Equity in access to services**, focusing on highly vulnerable population groups, and under-served areas, and ensuring that marginalized communities are not neglrcted;
- **Strengthening partnerships** across all partners, the private sector, Faith based institutions, research and academic institutions;
- **Fostering inter-sectoral collaboration** at local; district, zonal and regional level between human health, animal health, and the environment using the "One health Approach";
- **Evidence-led and prioritization**: forward looking to consider emerging trends, risks and health innovations; and inter-country, regional, sub-regional and cross-border cooperation and resource availability to reinforce timely information sharing and coordinated interventions;
- **Shared responsibility:** Global health security is a shared responsibility that cannot be achieved by a single actor or sector of government. Its success depends upon collaboration among the health, security, environment and agriculture sectors.
- **Responsive Accountability and Transparency**: openness and willingness to promote and share information to facilitate rapid response.
- **Resilience** - recognizing the varied staff, programmes, disciplines, sectors and backgrounds with the aim of reaching a common goal.
- **Dynamism and sustainability-** This plan will be receptive to new problem that emerge, situations, and changes in law, policy, and institutions. Therefore, the plan will be reviewed and updated periodically to accommodate changes to make the Plan viable.

3. METHODOLOGY FOR THE DEVELOPMENT OF THE ACTION PLAN

3.1. Review of JEE and Other Assessment Recommendations.

Following the finalization of the JEE in September in 2016, the MOH and NPHIL with the support of partners undertook several initiatives to address gaps and weaknesses identified in the IHR 2005 core capacities. These included, implementation of the five-year Global Health Security Agenda (GHSA); establishment and inauguration of the One Health platform; development of the Disaster

Risk Management Action Plan; passage into law the Act establishing the NPHIL; the situational analysis of Anti-Microbial Resistance (AMR); development of the laboratory strategic plan, improvement of diagnostic capacity; and other interventions to improve surveillance, laboratory and epidemic preparedness and response.

3.2. Prioritization of Activities by Technical Area

The NAPHS development process was led by the NPHIL and MOH, initial review of the JEE recommendations was conducted by NPHIL in June 2017. This review culminated with a planning and costing workshop from 23rd – 25th October 2017 in Buchanan, Grand Bassa County. The workshop brought together all stakeholders that included line Ministries and government agencies as well as key partners. There were 55 participants from the following institutions: Ministry of Health, Ministry of Agriculture, Ministry of Internal Affairs, Ministry of Commerce and Industry, Liberia National Police, Liberia Immigration Service, Liberia National Fire service, Armed Forces of Liberia, National Public Health Institute of Liberia, Forestry Development Authority, Environmental Protection Agency, University of Liberia, World Health Organization, Centers for Disease Prevention and Control, United States Agency for International Development, United Nations Food and Agriculture Organization, International Organization for Migration, PREDICT 2, Preparedness and Response Project.

Objectives of the planning and costing workshop were threefold; to review recommendations from the JEE report, prioritize realistic interventions against each of the 19 technical areas, and to cost the agreed interventions. This culminated in the official approval and launch of the NAPHS.

The following were the criteria and steps for the prioritization of the interventions and activities:

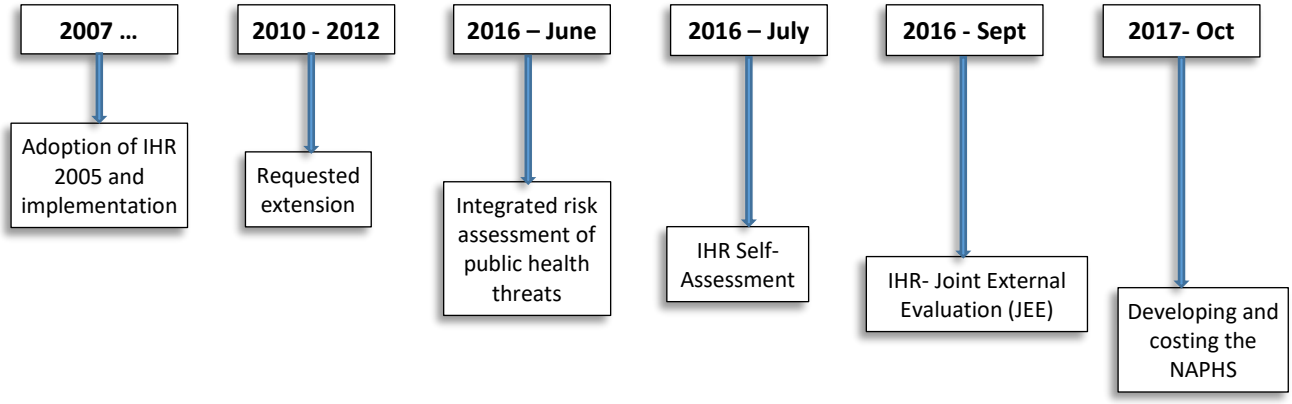
- Review of all 19 technical areas to identify critical gaps;
- Identification of realistic, relevant and achievable actions that are likely to be implemented in the short and medium term;
- During selection of the activities; priority was given to activities that will strengthen the health system and ultimately contribute to sustainable implementation of the NAPHS;
- Careful review of the prioritized actions to avoid duplication, and promote synergies and complementarity with on-going activities in human and animal health as well as actions that have human-animal-environmental interphase;
- Selection of activities that would accelerate progress in areas that received low scores (1-3) and maintain actions in areas where the country has shown demonstrated capacities (high scores – 4-5);
- The alignment and harmonization with other on-going initiatives, following the One Health approach;
- Selection of activities to be implemented in a sequential or phased approach (year 1, 2, 3-5) considering the availability of resources;
- Development of realistic assumptions to facilitate costing of the proposed interventions;

- Costing of all the proposed activities.

Interventions for each technical area were reviewed by subject matter experts and presented in a plenary for discussion. During the discussions, it was considered necessary to take advantage of the opportunities created by the One Health Platform, map key partners and existing plans to ensure sector-wide and multi-sectoral involvement.

The workshop provided the opportunity for transparent and objective discussions to promote multi-sectoral participation and better operationalization of the NAPHS.

Figure 2. Liberia's journey to the National Action Plan for Health Security



3.3. Linkages with Other Programmes and Initiatives

Liberia's NAPHS was developed at a time when the country is recovering from the effects of the unprecedented EVD outbreak that affected the health sector and caused socio-economic shocks. The country is already implementing the health sector investment plan, complementing the 10-year national health policy and plan.

Therefore, the NAPHS will be linked to the following initiatives among others:

- The national transformation agenda (being updated) that prioritized health as part of human development pillar to increase growth and productivity to move Liberia into medium income status by 2030 in line with the Sustainable Development Goals (SDGs);
- The National Health Investment plan with focus on Universal Health Coverage (UHC) and health security;
- The Global Health Security Agenda;
- The National Public Health Institute strategic plan;
- The Regional Disease Surveillance Enhancement project (REDISSE);
- The National Disaster Risk Management Action Plan in line with the Sendai framework;
- Laboratory strategic plan;
- Environment Protection Agency strategic plan;
- Food security plan;
- Fisheries and Food Safety Policy and plan;
- Risk communication strategy.

3.4. Sector-Wide Approach

Effective coordination of resources and especially external aid, in implementation of the NAPHS is essential to avoid duplication. The MOH has a unit for external aid coordination and has recently

signed the Compact. The MOH with support of partners established the Pool Fund in 2008 to increase the leadership role of the Ministry, coordinate support to the sector and track implementation of the national health plan. However, this was not a sector-wide approach because not all donors were willing to embrace the basket finding.

Implementation of the NAPHS will require strong national leadership and ownership by the government. This will improve donor coordination and alignment to reduce or minimize transaction costs, improve aid effectiveness, and increase equity.

In the context of One Health, the Government of Liberia will play an overall stewardship and coordination role, and this will be technically led by the Ministry of Health with support from the NPHIL.

4. COMPONENTS OF THE NATIONAL PLAN WITH ESTIMATED COSTS

Overall, Liberia will require nearly US$ **154,392,676** over a period of five (5) years to implement the NAPHS. It is likely that the government of Liberia through the relevant Ministries and agencies will allocate approximately USD 2 million annually to support implementation of NAPHS. This amount will arise from human resource costs, direct allocation to specific interventions in the priority sectors and other sector related operational costs.

4.1. Total NAPHS Cost by Thematic and Cross-Cutting Areas

The table below presents the cost breakdown by category and technical areas over the 5 years. The categories, "Prevent", "Detect" and "Respond" account for the high share of the budgets at 16.0%, 65.5% and 13.7% respectively. **Table** 1 shows cost of the NAPHS by component and technical area. The (6) six technical areas driving the budget are: Workforce development, Real time surveillance, National laboratory system, Preparedness, Food safety and Zoonotic diseases.
Table 1: Budget distribution for the 19 technical areas

CATEGORY AND TECHNICAL AREA	**2018**	**2019**	**2020**	**2021**	**2022**	**Total**
PREVENT						
1.1. National Legislation, Policy and Financing	132,900	6,125	1,225	1,225	1,225	**142,700**
1.2.IHR Coordination, Communication & Advocacy	1,200,598	824,198	937,948	789,548	757,798	**4,510,088**

CATEGORY AND TECHNICAL AREA	2018	2019	2020	2021	2022	Total
1.3 Antimicrobial Resistance (AMR)	46,400	797,460	453,650	599,085	453,650	**2,350,245**
1.4.Zoonotic Disease	1,579,485	1,292,335	1,055,410	1,550,110	1,055,410	**6,532,750**
1.5. Food Safety	2,333,235	1,104,150	1,147,475	1,104,150	1,147,475	**6,836,485**
1.6. Biosafety and Biosecurity	14,650	162,025	69,500	59,500	58,275	**363,950**
1.7. Immunization	564,925	867,675	867,675	867,675	867,675	**4,035,625**
PREVENT: Sub-total	**5,872,193**	**5,053,968**	**4,532,883**	**4,971,293**	**4,341,508**	**24,771,845**
DETECT						
2.1. National Laboratory System	4,906,809	5,188,474	5,178,034	5,120,449	5,128,749	**25,522,515**
2.2. Real Time Surveillance	4,880,773	9,703,943	7,444,818	6,457,918	6,191,418	**34,678,870**
2.3. Reporting	220,220	199,520	199,520	169,720	169,720	**958,700**
2.4. Workforce Development	-	16,894,580	7,683,480	7,683,480	7,687,080	**39,948,620**
DETECT: Sub-total	**10,007,802**	**31,986,517**	**20,505,852**	**19,431,567**	**19,176,967**	**101,108,705**
RESPOND						
3.1. Preparedness	1,688,798	3,163,275	680,125	105,100	3,210,825	**8,848,123**
3.2. Emergency Response Operations	518,200	268,965	267,825	236,900	36,250	**1,328,140**
3.3. Linking Public Health and Security Authorities	4,356,660	342,310	368,260	342,310	342,310	**5,751,850**
3.4. Medical Countermeasures and Personnel Deployment	194,850	299,480	105,000	31,150	63,600	**704,080**
3.5. Risk Communication	635,325	1,016,901	1,070,950	777,225	1,008,650	**4,509,051**
RESPOND- Sub-total	**7,393,833**	**5,090,931**	**2,492,160**	**1,492,685**	**4,661,635**	**21,131,244**
OTHER IHR-RELATED HAZARDS AND POINTS OF ENTRY						
4.1. Points of Entry (PoE)	1,182,825	44,480	90,130	60,480	139,180	**1,517,095**

CATEGORY AND TECHNICAL AREA	2018	2019	2020	2021	2022	Total
4.2. Chemical Events	1,468,285	382,070	768,070	382,070	458,470	**3,458,965**
4.3. Radiation Emergencies	1,042,245	331,970	356,820	331,970	331,820	**2,394,825**
OTHER IHR-RELATED HAZARDS & PoE: Sub-total	**3,693,355**	**758,520**	**1,215,020**	**774,520**	**929,470**	**7,370,885**
Grand Total	**26,967,183**	**42,889,936**	**28,745,915**	**26,670,065**	**29,109,580**	**154,382,676**

4.2. Technical Components over the five (5) Years (2018-2022)

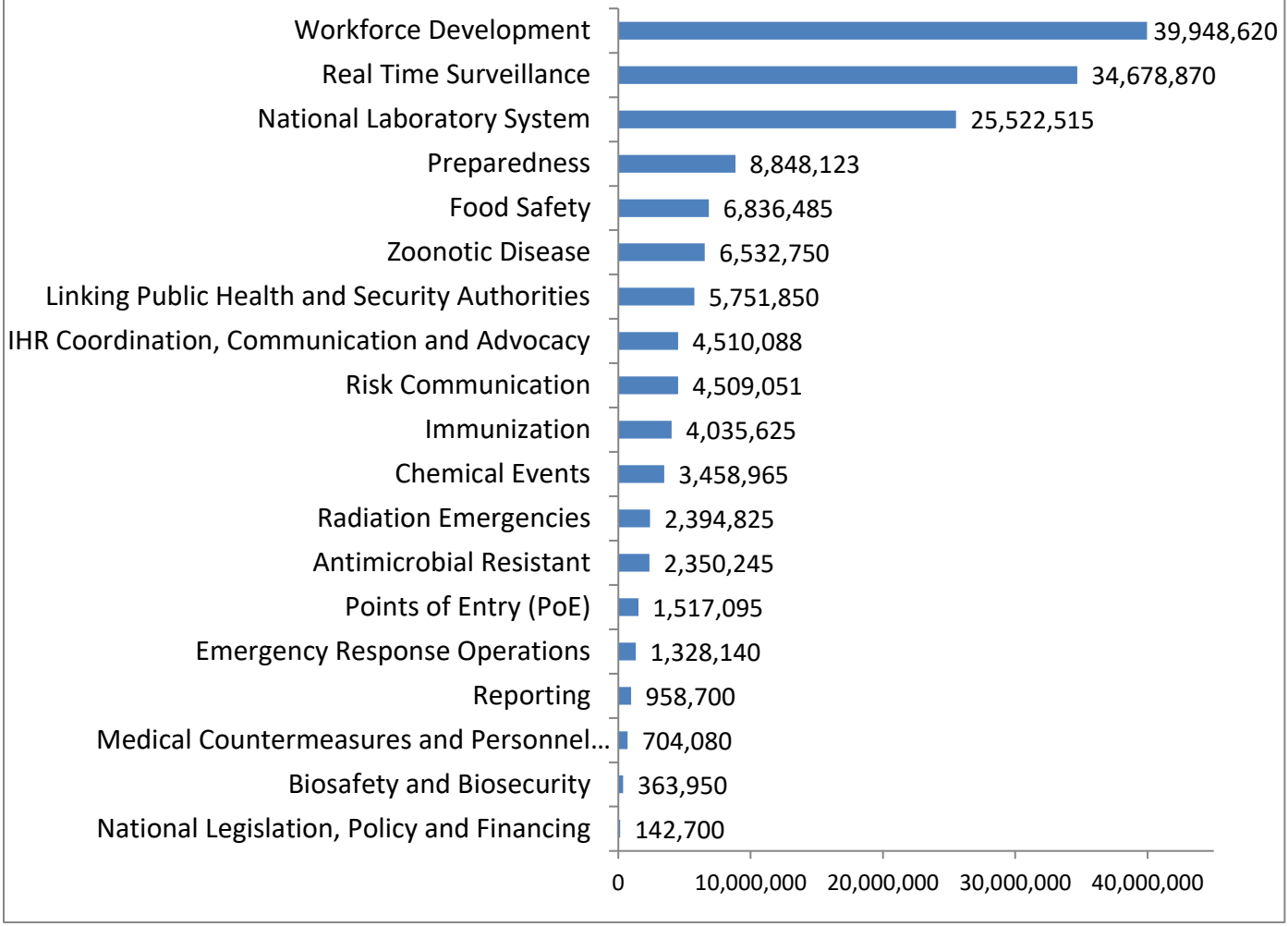
Table 2: Total cost of NAPHS by Category areas

CATEGORY	2018	2019	2020	2021	2022	Total
Prevent	**5,872,193**	**5,053,968**	**4,532,883**	**4,971,293**	**4,341,508**	**24,771,845**
Detect	**10,007,802**	**31,986,517**	**20,505,852**	**19,431,567**	**19,176,967**	**101,108,705**
Respond	**7,393,833**	**5,090,931**	**2,492,160**	**1,492,685**	**4,661,635**	**21,131,244**
Other	**3,693,355**	**758,520**	**1,215,020**	**774,520**	**929,470**	**7,370,885**
Total	**26,967,183**	**42,889,936**	**28,745,915**	**26,670,065**	**29,109,580**	**154,382,676**

Table: 3 Cost Breakdown per techncial area						
Capacity	**2018**	**2019**	**2020**	**2021**	**2022**	**TOTAL**
National Legislation, Policy and Financing	132,900	6,125	1,225	1,225	1,225	142,700
IHR Coordination, Communication and Advocacy	1,200,598	824,198	937,948	789,548	757,798	4,510,088
Antimicrobial Resistant	46,400	797,460	453,650	599,085	453,650	2,350,245
Zoonotic Disease	1,579,485	1,292,335	1,055,410	1,550,110	1,055,410	6,532,750
Food Safety	2,333,235	1,104,150	1,147,475	1,104,150	1,147,475	6,836,485
Biosafety and Biosecurity	14,650	162,025	69,500	59,500	58,275	363,950
Immunization	564,925	867,675	867,675	867,675	867,675	4,035,625
National Laboratory System	4,906,809	5,188,474	5,178,034	5,120,449	5,128,749	25,522,515
Real Time Surveillance	4,880,773	9,703,943	7,444,818	6,457,918	6,191,418	34,678,870
Reporting	220,220	199,520	199,520	169,720	169,720	958,700
Workforce Development	-	16,894,580	7,683,480	7,683,480	7,687,080	39,948,620
Preparedness	1,688,798	3,163,275	680,125	105,100	3,210,825	8,848,123
Emergency Response Operations	518,200	268,965	267,825	236,900	36,250	1,328,140
Linking Public Health and Security Authorities	4,356,660	342,310	368,260	342,310	342,310	5,751,850
Medical Countermeasures and Personnel Deployment	194,850	299,480	105,000	31,150	63,600	704,080
Risk Communication	635,325	1,016,901	1,070,950	777,225	1,008,650	4,509,051
Points of Entry (PoE)	1,182,825	44,480	90,130	60,480	139,180	1,517,095

Chemical Events	1,468,285	382,070	768,070	382,070	458,470	3,458,965
Radiation Emergencies	1,042,245	331,970	356,820	331,970	331,820	2,394,825
TOTAL	**26,967,182**	**42,889,936**	**28,745,915**	**26,670,065**	**29,109,580**	**154,392,676**

Figur 4: Cumualtive Budget breakdown per technical area



4.3. Main Cost Drivers per the JEE Thematic Areas

The main cost drivers are mentioned in table 4 below:

Table 4. Main cost drivers of the NAPHS

Core Component	Cost Drivers
Prevent	• Food Safety • Zoonotic diseases • IHR coordination, Communication and Advocacy
Detect	• Workforce development • Real-time surveillance • National Laboratory system
Respond	• Preparedness • Linking public health and security authorities • Risk Communication
Other IHR-related hazards and Points of entry	• Chemical events • Radiation emergencies

4.4. Risk Appraisal and Key Risks

The main risks and assumptions associated with the NAPHS and their significance to implementation of the NAPHS:

Category	Uncertainty/Risk	Assumption
Support for NAPHS Implementation	• Low collaboration among key stakeholders' in NAPHS implementation.	• Increased interest and commitment by the One Health partners • Increased partnership and collaboration in NAPHS implementation
Changes in technology	• Fast changing technology will affect implementation of NAPHS	• No massive change in technology to affect NAPHS implementation • Partners will provide the necessary technical assistance as required
Finance	• Unavailability of funds (domestic and external) • Delay in getting financial commitment and allocation • Change in government priorities over time	• Availability of adequate domestic and external funds • Donors are committed and allocate funds for implementation of the NAPHS • No change in government allocation of domestic funds for implementation of programs including NAPHS
Human resource	• High staff turn over • Low staff motivation • Limited number of qualified human resource	• Human resource will be available, motivated, trained and deployed
Social and community mobilization	• Low level of public awareness and community engagement • Socio-cultural barriers	• Sustained community involvement through the relevant strategies
Governance	• Inadequate support from the Legislatures • No buy-in or support by the politicians	• Government ownership and buy-in • Continued political support and advocacy
Natural (Man-made/natural disaster)	• Unknown disaster or crisis affecting implementation of NAPHS	• Adequate preparedness and effective response to known event or hazards

4.5 Strategic Interventions

Technical Package	Strategic Intervention	Baseline 2017	Mile stone
National Legislation, Policy and Financing	Conduct assessment of all policies, legislations, regulations, laws, etc.) appropriate for implementation of IHR (2005) across thematic areas for all relevant ministries and government agencies	0	By end of 2018, the public health law will be finalized
	Finalize the revised Public Health Law (1976)	0	By end of 2021, budget line for implementation of the NAPHS will be of the health budget By end of 2020 strategic policies and plans finalized
	Sensitize stakeholders on the updated Public Health Law		
	Build the capacity of the ministries and government agencies on laws and policies application		
	Advocate for with the Ministry of Finance and legislators for inclusion of budget line for IHR implementation by concerned line ministries and agencies (MOH, MOA, FDA, MOCI, MOJ, EPA, MOD, etc.)		
IHR Coordination	Strengthen the multi-sectorial coordination mechanism under One Health approach	Initiated	By end of 2018, a multi-sectoral (One health) coordination mechanism established and functional at national level
	Strengthen human resource capacity, information sharing and mandate of the IHR /One Health in animal, human and environmental sector	1	By end of 2022, the number of Ministries/Institutions[14] with IHR focal points will be increased to 5
	Conduct simulation exercise to test coordination and information sharing mechanisms	0	By end of 2022, 5 annual IHR simulations conducted
Antimicrobial Resistance	Develop national plan and system for detection and reporting of priority AMR pathogens	0	By end of 2018, AMR plan developed
	Development of a National AMR plan for laboratory detection and reporting	TBD	By end of 2022, 100% of hospitals conducting HCAI and prevention control
	Develop national AMR surveillance system	0	By end of 2021, 4 labs in human and animal health designated for AMR detection and reporting
	Strengthen HCAI prevention and control programs in Human and Animal Health facilities		
	Institutionalize IPC in animal care and healthcare facilities for HCAI prevention and control		
	Strengthen advocacy and stewardship for AMR		
Zoonotic diseases	Develop epi-surveillance system for priority zoonotic diseases (domestic/wildlife) adopting a One Health approach (border areas, inland)	0	By end of 2022, timeliness and completeness of reporting to OIE will be 100%

[14] MOH, MOA, EPA, FDA and MOCI

Technical Package	Strategic Intervention	Baseline 2017	Mile stone
	Develop capacity for animal health workforce to ably detect, manage and respond to zoonotic diseases/ outbreaks, and for research	NA	By end of 2022, a functional zoonotic disease surveillance system in human and animal health established and functional
	Establish veterinary higher education in Liberia	0	By 2022, curriculum available and courses introduced in University of Liberia
	Develop legislation that allows for mandatory reporting of priority zoonotic diseases		By end of 2022, 100% of zoonotic disease outbreaks are timely reported and responded to within 48 hours
	Develop capacity for rapid response to zoonotic infections/outbreaks		
Food Safety	Establish a system for surveillance of food borne pathogens	NA	By end of 2022, food borne disease surveillance system established
	Strengthen and establish new food testing laboratories	NA	By end of 2021, 2 functional food safety laboratories established
	Strengthen Inter-sectoral coordination on food safety in Liberia	1	
	Adopt Codex Standards		By end of 2022, food safety standards and law developed
	Finalize national Food Law		
Biosafety and Biosecurity	Strengthen the multi-sectorial coordination mechanism under One health approach	NA	By end of 2019, coordination strengthened and a legislation on biosafety and biosecurity developed
	Develop a biobanking system for dangerous pathogens' storage	NA	By end of 2022 a biobank established
	Implement laboratory licensure procedure	0	By end of 2022, 100 personnel trained on biosafety and biosecurity
	Implement safer laboratory diagnostic techniques		
	Develop in-country training capacity for biosafety and biosecurity		
	Monitor implement biosafety and biosecurity practices		
Immunization	Strengthen the implementation of national immunization plans to improve coverage.	50%	By end of 2021, 80% of children fully immunization through the urban immunization strategy
	Strengthen the capacity of human resources for immunization service delivery	90%	By end of 2022, 100% immunization coverage in high risk communities with VPD outbreaks
	Strengthen equity focus analysis and programing for immunization service delivery		
	Scale up urban immunization strategy		

Technical Package	Strategic Intervention	Baseline 2017	Mile stone
	Build the capacity in data management, analysis and use to address data quality issues such as (over-reporting, incomplete reporting and use of correct denominators) to determine vaccination coverage.	TBD	By end of 2019, quality of surveillance data improved
	Strengthen VPD surveillance and AEFI monitoring		
	Strengthen vaccine stock management and accountability systems	TBD	By end of 2021, no stock out of vaccines reported from health facilities
Laboratory	Expand and decentralize IDSR diagnostic capacity - develop new diagnostic capacity	0	By end of 2021, 3 regional labs with diagnostic capacity for IDSR priority diseases
	Strengthen laboratory information system for improved lab data management and reporting	TBD	By end of 2021, 400 personnel trained on specific diagnostics
	Strengthen technical capacity for laboratory confirmation of disease outbreaks	TBD	By end of 2021, 100% of specimens received at NRL on time and in good condition
	Establish comprehensive specimen referral network in the country	TBD	By end of 2021, lab policy, strategic plan and guidelines available By end of 2022 laboratory quality system and referral network functional
	Implement adherence to cold chain management of specimens through procurement, establishment and maintenance of cold chain equipment at relay points as well as during transportation		
	Procure and supply equipment, reagents, consumable		
	Enhance equipment maintenance, management & certification & facility management		
	Finalize key lab documents (lab policy , strategic plans, guidelines)		
	Expand and/or implement laboratory quality system in 19 human health laboratories, 5 veterinary laboratories, the national standards laboratory and one laboratory from each of the environmental and justice sectors		
	Enrol laboratories into lab accreditation system – (3) human health sector, (1) animal health sector and (1) food/commerce sector		
	Develop and implement licensing procedures for laboratories as well as personnel		
Surveillance	Strengthen capacity for IDSR and eIDSR implementation at all levels under one health platform	75%	By end of 2021, 100% of health facilities with 2 staff trained on IDSR

Technical Package	Strategic Intervention	Baseline 2017	Mile stone
	Strengthen implementation of EBS	95%	By end of 2021, 100% of health facilities submitting complete surveillance reports to the national level on time
	Strengthen capacity for animal priority diseases surveillance at all levels	50%	By end of 2021, 100% of health districts with 5 volunteers trained on EBS
	Revise national IDSR strategy based on the AFRO-IDSR guideline 3rd Edition	0	By end of 2021, 4 sentinel sites for influenza surveillance established
	Strengthen IDSR through supportive supervision and quarterly meetings		
	Introduce IDSR and IHR pre-service (para-medical) training		
	Build capacity for real time electronic reporting		
	Roll out an electronic web-based reporting and data management system in 15 counties		
	Build technical capacity for data analysis, management and use at national and sub-national level		
	Supervise, monitor and evaluate IDSR processes and procedures, including systematic data quality audits (DQA)		
	Build capacity for syndromic surveillance under one health approach in all levels		
	Establish sentinel site for Influenza surveillance		
	Strengthen the testing capacity for IDSR Priority diseases to support syndromic surveillance		
Reporting	Establish and strengthen capacity for MOA reporting from all levels	0	By end of 2021, 4 NFPs trained on IHR/OIE reporting
	Establish a central database at MOA/ establish a functional Epi unit for disease reporting	TBD	By end of 2021, 100% of potentially PHEIC reported on time
	Build capacity for IHR reporting within MOH and MOA including training personnel, IHR NFP and OIE	None	By end of 2019 guidelines for IHR NFP and IOE Delegates available
	Strengthen collaboration between IHR NFP and OIE delegate		
	Strengthen the routine IDSR reporting and feedback system at national and subnational levels		
	Identify food safety focal person and establish relationship with the IHR NFP		
Workforce Development	Develop skilled and competent health workforce for effective implementation of IHR (2005) under One Health Approach	100	By end of 2021, 400 personnel trained in FETP and FETPV (human and animal health

Technical Package	Strategic Intervention	Baseline 2017	Mile stone
	Establish two levels (Frontline and Intermediate) of FETP in country with a One Health approach	None	By end of 2019 a health workforce development strategy available
	Establish the MPH program at the University of Liberia with a One Health approach		
	Address the gaps in epidemiology training through external training opportunities and exchange visits		
	Develop and update Health Workforce Strategies for animal, human, and environmental health sectors		
	Implement strategies and polices to attract and retain the trained workforce in human, animal and environmental sectors		
Preparedness	Develop the national multi-hazard plan	0	By end of 2019. 15 counties conducted all hazard risk assessment and mapping
	Test the multi-hazard plan	None	By end of 2018, a national multi-hazard plan available
	Strengthen permanent isolation capacity in selected hospitals	None	By end of 2020, a health facility isolation capacity action plan available
	Develop occupational health and safety guideline for healthcare industries	0	By end of 2019, 15 counties with trained multi-disciplinary rapid Response Teams (RRTs)
	Strengthen capacity for multi-disciplinary RRTs at national & sub-national levels		
	Strengthened institutional and legal system for disaster risk reduction in Liberia		
	Conduct all hazards risk mapping across the Country		
	Strengthen regional storage facilities and preposition MH response supplies including logistics		
Emergency Response Operations (EOC)	Build capacity to activate emergency response operations at national and county levels	Yes	By end of 2018. updated Public Health Emergency Operations Plan (PHEOP) and EOC Standard Operations Procedures (SOP) available
	Strengthen emergency operations framework at national and county level	15	By end of 2018, 15 counties have functional EOCs
	Strengthen procedures and plans for emergency operations and response		
	Conduct multi-sectoral EOC simulation exercises at national and county level		
	Develop and update case management guidelines for cholera, EVD, meningitis, VHF, monkeypox		

Technical Package	Strategic Intervention	Baseline 2017	Mile stone
Risk Communication	Strengthen risk communication capacity	None	By end of 2019, risk communication guidelines available
	Update national risk communication plan	None	By end of 2019, media communication policy and strategic plan available
	Strengthen inter-sectorial and interagency communication	0	By end of 2021, 15 counties with epidemic prone communities mapped
	Publish public health best practices in Liberia		
	Strengthen capacity for community engagement		
	Establish community outreach programs and regularly conduct IEC material testing with members of target audience.		
	Establish a rumour tracking, reporting and management system		
Medical Countermeasures	Develop a plan and guidelines for medical counter measures during public health emergencies	None	By end of 2019, plan for sending and receiving medical countermeasures available By end of 2019, all memoranda of understanding signed among MRU countries.
	Develop MOUs with suppliers for procurement of Medical countermeasures during emergencies		
	Develop MOUs with neighbouring countries for sharing medical countermeasures during public health emergencies		
	Develop a national plan for sending and receiving health personnel during public health emergencies		
	Establish pool of technical personnel for supporting public health emergencies in-country and in other countries		
	Develop MOUs with neighbouring countries for sharing health personnel during public health emergencies		
Linking Public Health and Security Authorities	Strengthening the military and other security agencies' healthcare response capacities	None	By end of 2019, MOU and SOPs for collaboration between public health and the security authorities available
	Strengthen the Liberia National Fire Service response plan and standard operating procedures (SOPs)		
	Strengthen regional and continental collaboration of security sector for health disaster responses (APORA, ECOWAS, MRU)		
	Strengthen collaboration between public health sector and security sector		

Technical Package	Strategic Intervention	Baseline 2017	Mile stone
	Review and update LNP Strategic Plan/SOP to reflect an Emergency Health Response		
Ports of Entry (PoE)	Develop a national contingency plan for port health services	TBD	By end of 2021, 75% of main designated POEs are adequately equipped
	Map existing resources and develop inventory for emergency response	TBD	By end of 2021, 50% POEs conduct routine screening for travellers
	Review list of designated PoE, with the inclusion of land crossings Ports of Entry	Availabl e	By end of 2018, contingency plans and SOPs on port health available
	Develop SOPs, guidelines and reporting tools for port health services		
	Strengthen the capacity of designated PoEs in IHR requirement		
	Develop MOUs between designated PoEs and their referral facilities		
	Review and update Integrated Border Management Strategy		
Chemical Emergencies	Develop regulations on chemicals (importation, handling, management, storage, utilization, risks and disposal)	None	By end of 2018 regulation on chemical events available
	Build capacity for chemical events, intoxication and poisoning surveillance	None	By end of 2018, guidelines for management of chemical events available
	Develop and implement a response plan for chemical incidents		
	Establish capacity for response to chemical events within the One Health strategy		
Radiation Emergencies	Strengthen capacity for detection, reporting and response to radio-nuclear events	None	By end of 2019, Radiological and Nuclear hazards response plan available
	Create Inventory of Nuclear and Radioactive Substances and high-risk sites	0	By end of 2021, 100 persons trained in the response to radio-nuclear events
	Procure equipment for monitoring radio activity		
	Develop and implement a Radiological and Nuclear Hazards response Plan		

5. DELIVERY OF THE ACTION PLAN

The Government of Liberia through the MOH and the NPHIL will provide overall stewardship, oversight and coordination. Partners and key stakeholders will support implementation of the plan. The NPHILserves as the reference point for the implementation of the NAPHS.

The One Health Coordination Platform (OHCP) will be responsible to facilitate the collaboration of multi-sector entities in addressing public health issues that cannot be implemented by a single sector, and/or delivery of service will require joint action. The functions of the OHCP will be exercised; (a) during non-public health events, (b) during public health events and (c) post public health events.

During the non-public health events, the OHCP will support multi-sectoral preparedness efforts to strengthen the IHR core capacities for prevention, detection and response. During public health events, the focus is to promptly interrupt any outbreak using the multi-sectoral capabilities and expertise, and during post-public health events, the focus is to ensure smooth recovery, documentation of lessons learned and building back better.

Financing of the plan will be achieved through domestic resources mobilization (Government annual budgetary allocation to line Ministries) in addition to donor contributions.
Some activities are currently being implemented through the GHSA and the REDISSE initiatives.

Risk appraisal and management will be conducted through the Annual reviews and technical working groups. It is obvious that successful implementation of the NAPHS will contribute towards the health systems strengthening and increase access to UHC.

5.1. Roles and Responsibilities of Key Government Stakeholders

The Vice President chairs the One Health Coordination Platform Ministerial Steering Committee to mobilize the needed resources (domestic and external), ensures political commitment and facilitates the collaboration and discussions on human, animal, and environmental health.
The office of the Vice President will also support regional and international legal commitments that need to be amended through legislative means to ensure compliance. The key stakeholders and their roles and responsibilities are mentioned below.

Government Sector	Roles and responsibilities
President's Office	• Overall political, coordination, advocacy and partnership. • Coordinates the One Health Inter-Ministerial Steering Committee • Hosts the One Health Secretariat
Disaster Management Agency	• The Disaster Management Agency (DMA) has been recently constituted and replaces the former National Disaster Management Commission (NDMC).

Government Sector	Roles and responsibilities
	• Leads the Disaster Management interventions including overall Disaster preparedness and response.
Ministry of Health	• Strengthen the health components of the IHR core capacities, co-lead the development and implementation of the NAPHS and mobilize resources for implementation of the NAPHS.
National Public Health Institute of Liberia	• Co-lead the development and implementation of the NAPHS and mobilize resources for the NAPHS.
Ministry of Finance Development Planning	• Allocate annual financial support for implementation of the NAPHS. • Support aid coordination for implementation of the NAPHS
Ministry of Agriculture	• Strengthen the capacity for prevention, detection and response to zoonotic diseases.
Ministry of Defence	• Collaborates with the Ministries of Health, Agriculture and MDA to respond to public health threats and disasters
Ministry of Foreign Affairs	• Support regional and sub-regional framework for collaboration and medical counterparts. • Coordinates with EPA on issues related to chemical management.
Ministry of Internal Affairs	• Supports the work of the disaster management agency
Environmental Protection Agency	• Coordinates and provides oversight on all issues related to environmental management.

5.2. Coordination Mechanisms and Framework for Delivery of Action Plan

At the central level, the One Health Coordination Platform (Inter-Ministerial, Technical Committee and Technical Working Groups) serves as the main forum. The Secretariat of the One Health Coordination Platform under the office of Vice President will be responsible for the administration and operations of the One Health Coordination Platform, the One Health Technical Committee, and the Technical Working Groups. It will be responsible for the logistics for meetings.

The county level multi-sectoral coordination mechanism will be led by the County Superintendent and will include members of the County Health Teams, County Agriculture Coordinator and Quarantine Officers, Regional Forestry officers, Head of the County Joint Security Office, Partners, County Red Cross Representatives, and County Disaster Management Agency Representatives.

In the future, the same structure shall be replicated at district level and shall be led by district commissioners/ superintendents, clan chiefs, district health team, partners and others community representatives. At community level, the structure will be represented by town chiefs, community leaders, health facility officer-in-change, and representatives of women and youth groups.

5.3. Alignment of Internal Stakeholders

The NAPHS is aligned to the GHSA and other sector plans to address the JEE recommendations. The One Health Technical Committee will play an important role in tracking progress in its implementation. This will provide opportunity for reviews, address challenges and opportunities for strengthening IHR core capacities.

The priority interventions in the NAPHS were guided by inter-sectoral policies and strategic documents as well as recommendation from the JEE to ensure alignment with medium term national strategies.

5.4. WHO-Strategic Partnership Portal

The Strategic Partnership Portal (SPP) allows countries, donors, partners, international agencies and other relevant health security stakeholders to determine the activities and initiatives that are being carried out in countries in building IHR capacities. The implementation progress in Liberia will be accessible at the portal (https://extranet.who.int/spp/about-strategic-partnership-portal).

5.5. The Monitoring and Evaluation Framework

The One Health Coordination Platform secretariat shall develop a detailed monitoring tool and dashboard that visualizes the progress achieved against work-plans. The Dashboard will be updated monthly and/or quarterly and shared with the Inter-Ministerial steering committee and partners including WHO, FAO and IOE on quarterly/semi-annually basis.

Joint supervision involving the MOH, NPHIL, One health secretariat and partners shall be conducted annually to verify progress on performance against targets.
A result framework (indicators, baseline and targets) shall be used to determine progress made during implementation of the NAPHS.

Liberia's National Action plan for Health Security (NAPHS) shall be monitored throughout its life-span through the processes identified in the Global IHR Monitoring and Evaluation framework. Most indicators included in the NAPHS can also be tracked through the M&E plan of the MOH, the NPHIL strategic plan, the GHSA and other program specific plans using the same national process of data collection, analysis and reporting.

Annual Reporting: Liberia will continue to report annually on the development of the IHR (2005) core capacities in conformity with its obligation to the World Health Assembly (WHA) on the implementation of IHR (2005). Process indicators shall be monitored during the reviews of the NAPHS.

Simulation Exercises: Liberia will conduct at least one simulation exercise annually at national and county levels to test the functionality and to validate the functional capacities of the IHR (2005). The findings from the simulation exercises can provide an indication on the level of capacities across the nineteen technical areas.

After Action Review (AAR): The AAR helps to review actions taken to respond to an emergency or outbreak. It provides an opportunity to identify what worked well, challenges, lessons learned and best practices. Liberia will conduct AAR following response to any public health event in the country.

Mid-Term Review: Mid-term review of the plan will be conducted in 2019 to show progress, identify challenges and provide recommendations to guide implementation of the NAPHS in the remaining implementation period. The mid-term review will be led locally by the MOH and NPHIL with support of partners.

The Joint External Evaluations: The JEE conducted in September 2016 highlighted strengths, issues and recommendations that helped in the development of the NAPHS. A follow up JEE will be conducted in 2021 as part of the end evaluation of the NAPHS

Other Assessments

Other assessments in human and animal health as well other relevant agencies will also be used to assess implementation of the NAPHS. The main assessments/reviews include among others:

- Annual health sector reviews
- Performance for veterinary services
- Environmental assessments

6. ANNEXES

6.1 Terms of Reference of National Multi-Agency Coordination Committee

The purpose of the One Health Coordination Platform is to productively facilitate the collaboration of multi-sector entities in addressing those public health issues that cannot be solved by a single sector.

The functions of the One Health Coordination Platform are grouped under three main headings; namely, functions during (a) Non-public health events, (b) Public health events and (c) Post public health events; these are specified as follows:

(a) Functions of the platform during the non-public health event (pre-event):

i. Coordinate multi-sector One Health activities by promoting institutional development to include co-ordinating resource mobilization for preparedness, risk and vulnerability reduction among Government and other implementing partners;
ii. Conduct joint evaluation / assessments within major line ministries and agencies;
iii. Institutionalize the One Health approach to address any public health event and/or pandemic that poses health threats;
iv. Ensure that appropriate measures are taken for the prevention of events, or the mitigation of their effects, and for capacity building for effective response to events;
v. Conduct mapping of existing sources of funding for OH activities;
vi. Advocate for the multi-sector approach to: Problem solving and planning, reviewing, monitoring and evaluating Early Warning Reports in accordance with identified risks and vulnerabilities; developing preparedness/contingency plans for counties, and coordination of risk and vulnerability assessment/analysis and mapping of the hazards;
vii. Facilitate capacity building for multi-sector collaboration and resources in achieving information and knowledge management including: Facilitating training, research, simulations, education, public communication and awareness campaigns on event risk management.
viii. Maintain inventory of national capacity building, assets and resources.

(b) Functions of the platform during public health events:

(i.) Foster collaboration among stakeholders and trigger response mechanism through the activation of the Incident Management System (Action Plan);
(ii.) Facilitate joint rapid event assessment and its impact within 24 hours and document impacts, produce situation reports, recommend necessary actions, and communicate information to all stakeholders;
(iii.) Reactivate and/or establish various pillars of the incident management system for effective coordination and response led by the responsible sector to be managed by experienced persons with clear roles and responsibilities;
(iv.) Notify and/or liaise with: Development partners, national and international organizations, private sector, UN agencies, donor community, other non-

governmental organizations and community based organizations, and local authority/leadership on possibility of partner support for assessment and coordination;

(v.) Notify and initiate cooperation with event management authorities in neighbouring countries if the event is linked to cross-border effects;

(vi.) The incident management system will hold meetings, through the platform, to discuss recommended necessary interventions from the technical committees and/or technical working groups; and

(vii.) Ensure timely and adequate response to the event affected communities.

(c) The functions of the platform during post public health event:

(i.) Evaluate the event and its operations;

(ii.) Generate post event reports within a quarter after official declaration of the end of the event;

(iii.) Secure all the government and other properties/assets used in the event;

(iv.) Carry out a detailed needs and risk assessments for: Rehabilitation, recovery and reconstruction;

(v.) Develop activity plans linked to human health, animal / wildlife health, and the environment;

(vi.) Initiate and coordinate rehabilitation, recovery and reconstruction programmes for implementation;

(vii.) Conduct a detailed training, research, education and public awareness campaign on risk reduction linked to human health, animal / wildlife health, environmental as identified by post needs assessment gap identified; and

(viii.) Take necessary steps to ensure that recommended follow-up actions are undertaken within short-term, medium-term, and long-term interventions for risk reduction.

6.2 Indicators, Milestones and Targets

	Technical Area	Indicator	Data Source	Baseline	Implementation period			Target
				2018	2019	2020	2021	2022
Prevent	National Legislation, policy and Financing	National Public law updated and approved	MOH/ NPHIL	Draft available	Draft finalized & approved			Public health law enforced
		Availability of national budget line for NAHPS	MOH/ NPHIL/ MFDP	None	5%	8%	12%	15%
	IHR Coordination, Communication and Advocacy	Multi-sectoral (One health) coordination mechanism established at national level	MOH/ NPHIL/ MOA	1	1	1	1	1
		Number of Ministries/ Institutions[15] with IHR focal points	MOH/ NPHIL	1	2	3	4	5
		Number of IHR review meetings	NHPIL/ MOH	None	None	Mid-term evaluation	None	End-term evaluation
	Antimicrobial Resistance	AMR plan available	MOH/ NPHIL	None	Plan available	-	-	Plan implemented
		Number of health facilities conducting HCAI and prevention control	MOH/ NPHIL	TBD	25%	50%	75%	100%
		Number of labs in human and animal health designated for AMR detection and reporting	MOH/ NPHIL/ MOA	None	1	2	3	4
	Zoonotic Diseases	Timeliness and completeness of reporting to OIE	MOA	Every 6 months	Every 6 months + annual	85%	95%	100% 6 monthly and annual report
		Availability of functional zoonotic disease surveillance in human and animal health	MOA	0	In place	In place	In place	(100%) in place

[15] MOH, MOA, EPA, FDA and MOCI

	Technical Area	Indicator	Data Source	Baseline	Implementation period			Target
				2018	2019	2020	2021	2022
		Proportion of zoonotic disease outbreaks that are responded to within 48%	MOA	TBD	50%	75%	85%	100%
	Food Safety	Food borne disease surveillance system established	MOH/ NPHIL	0	25% functional	50% functional	75% functional	100% functional
		Availability of food safety law	MOH/ NPHIL	0	Yes	Yes	Yes	Yes
		Number of functional food safety laboratories	MOH/ NPHIL	1 (MOCI)	2[16]	2	2	2
	Biosafety and Biosecurity	Availability of legislation on biosafety and biosecurity	MOH/ NPHIL	0	Yes	Yes	Yes	Yes
		Availability of biobank	MOH/ NPHIL	0	Yes	Yes	Yes	Yes
		Number of personnel trained on biosafety and biosecurity	MOH/ NPHIL	0	25	50	75	100
	Immunization	Proportion of children fully immunization through the urban immunization strategy	MOH/ EPI reports	50%	60%	65%	70%	80%
		Immunization coverage in high risk communities with VPD outbreaks	MOH/ EPI reports	90%	95%	100%	100%	100%
Detect	National Laboratory System	Number of regional labs with diagnostic capacity for IDSR priority diseases	MOH/ NPHIL	0	1	2	3	3
		Number of health personnel trained on specific diagnostics	MOH/ NPHIL	TBD	100	200	300	400
		Proportion of specimens received at NRL on time and in good condition	MOH/ NPHIL/ NRL	75%	85%	95%	100%	100%

[16] National Reference Laboratory (NRL) and Ministry of Commerce and Industry (MOCI)

	Technical Area	Indicator	Data Source	Baseline	Implementation period			Target
				2018	2019	2020	2021	2022
		Lab policy, strategic plan and guidelines available	MOH/ NPHIL	Draft	Yes	Yes	Yes	Yes
	Real Time Surveillance	Proportion of health facilities with 2 staff trained on IDSR	MOH/ PHIL	75%	90%	100%	100%	100%
		Proportion of health facilities submitting complete surveillance reports to the national level on time	IDSR database/ MOH/ NPHIL	95%	100%	100%	100%	100%
		Proportion of health districts with 5 volunteers trained on EBS	IDSR Reports, MOH/ NPHIL	50%	75%	85%	100%	100%
		Number of sentinel sites for influenza surveillance	MOH/ NPHIL	0	2	3	4	4
	Reporting	Number of NFPs trained on IHR/OIE reporting	MOH/ NPHIL/ MOA	0	2	3	4	4
		Proportion of potentially PHEIC reported on time	MOH/ NHPIL	0%	100%	100%	100%	100%
		Availability of guidelines for IHR NFP and IOE Delegates	MOH/ NPHIL/ MOA	0	In place	In place	In place	In place
	Workforce Development	Number of persons trained in FETP and FETPV (human and animal health)	MOH/ NPHIL/ MOA	100	150	175	200	200
		Availability of health workforce development strategy	MOH/ NPHIL/ MOA	0	Draft	Yes	Yes	Yes
Respond	Preparedness	Number of counties that conducted all hazard risk assessment and mapping	MOH/ NPHIL	0	5	10	15	15
		Availability of national multi-hazard plan	MOH/ NPHIL/ DMA	0	Yes	Yes	Yes	Yes

	Technical Area	Indicator	Data Source	Baseline	Implementation period			Target
				2018	2019	2020	2021	2022
		Availability of health facility isolation capacity action plan	MOH/ NPHIL	0	Yes	Yes	Yes	Yes
		Number of counties with trained multi-disciplinary rapid Response Teams (RRTs)	MOH/ NPHIL/ MOA	0	5	15	15	15
	Emergency Response Operations	Availability of updated Public Health Emergency Operations Plan (PHEOP) and EOC Standard Operations Procedures (SOP)	MOH/ NPHIL	Yes	Yes	Yes	Yes	Yes
		Number of counties with functional EOCs	MOH/ NPHIL	15	15	15	15	15
	Linking Public Health with Security Authorities	Availability of MOU and SOPs for collaboration between public health and the security authorities	MOH/ NPHIL. MOD, MOJ	0	0	Yes	Yes	Yes
	Medical Countermeasures	Availability of plan for sending and receiving medical countermeasures	MOH/ NPHIL	0	0	Yes	Yes	Yes
	Risk Communication	Availability of risk communication guidelines	MOH/ NPHIL	Not available	Draft	Yes	Yes	Yes
		Availability of media communication policy and strategic plan	MOH/ NPHIL	Not available	Draft	Yes	Yes	Yes
		Number of counties with epidemic prone communities mapped	MOH/ NPHIL	0	25%	50%	75%	100%
Other IHR related	Points of Entry	Proportion of main designated POEs are adequately equipped	NPHIL	0%	25%	50%	60%	75%
		Proportion of POEs conduct routine screening for travelers	MOH/ NPHIL	0%	10%	25%	50%	50%

	Technical Area	Indicator	Data Source	Baseline	Implementation period			Target
				2018	2019	2020	2021	2022
		Availability of contingency plans and SOPs on port health	MOH/ NPHIL	Draft	Yes	Yes	Yes	Yes
	Chemical Events	Availability of regulation on chemical events	EPA/ MOFA	0	Yes	Yes	Yes	Yes
		Availability of guidelines for management of chemical events	EPA/ MOFA	0	Yes	Yes	Yes	Yes
	Radiation Emergencies	Availability of Radiological and Nuclear hazards response plan	EPA/ MOFA	0	Yes	Yes	Yes	Yes
		Number of persons trained in the response to radio-nuclear events	EPA/ MOFA	0	25	50	75	100

6.3 Implementation Plan and Annual Action Plan Matrix

1. National Legislation, Policy and Financing

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Conduct assessment of all Policies, legislations, regulations, laws, etc) appropriate for implementation of IHR (2005) across thematic areas for all relevant ministries and government agencies											
Hire local consultant for 4 weeks to support review of the existing policies/ regulations; review the documents [consultant fees for 4 weeks, Fuel to visit Ministries + stipend for 1 driver]	1					3600					3600
Establish a legislative committee of from relevant ministries and government agencies to review existing laws and policy and make recommendations (30 persons for 4 days)	1					7900					7900
Develop an online and hard-copy log and archive of existing documents [online platform for archive]	1										0
Finalize the revised Public Health Law (1976)											
Organize validation meeting [30 persons x 3 days] to update and validate the document	1					6000					6000
Submit validated documents to the legislature for passage	1										0
Advocate for passage through sensitization	1					1225					1225
Print into handbill	1										0
Sensitize stakeholders on the updated Public Health Law											
Relevant stakeholders meeting (20 participants X 1day)	1					1550					1550

Conduct a national sensitization meeting [approximately 100 participants x 1 day meeting]	1										0
Conduct County sensitization meetings [approximately 50 participants x 1 day each meeting in 15 counties]	1					6750					6750
Build the capacity of the ministries and government agencies on laws and policies application											
Set committee from the relevant ministries and government agencies. (10-15).	1					99750					99750
Quarterly interagency committee meeting and reporting report (10-15 members from different ministries and government agencies submit the report to IHR (2005) inter sectorial coordination committee	1	1	1	1	1						0
Orientation session for the key staff of the ministries and government agencies on updated laws, regulations and polices (refreshment) and on IHR (2005) Legislation.	1	1				4900	4900				9800
Advocate for with the Ministry of Finance and legislators for inclusion of budget line for IHR implementation by concerned line ministries and agencies (MOH, MOA, FDA, MOCI, MOJ, EPA, MOD, etc.)											
Identify the budgetary need for implementation of the legislation within the relevant ministries and agencies to facilitate full and efficient implementation of the IHR (2005).											
Organize advocacy meeting with Ministry of Finance, Health Standing Committee, and Budget Committee [1day x 15 people per meeting]	1	1	1	1	1	1225	1225	1225	1225	1225	6125
Sub Total						132,900.00	6,125.00	1,225.00	1,225.00	1,225.00	142,700.00

2. IHR Coordination

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Strengthen the multi-sectorial coordination mechanism under One health approach											
Develop SOPs for the coordination and integration mechanism -- that is, the One Health platform [Hire 1 international consultant for1 month to support the international consultant in developing of the SOPs, tools and framework]	1					14500					14500
Develop SOPs for the coordination and integration mechanism -- that is, the One Health platform [Hire 1 local consultant for 1 month to support the international consultant in developing of the SOPs, tools and framework]	1					3600					3600
Validate the SOPs [50 persons for 3 days]	1					24350					24350
Print and disseminate [300 pages 100 x 0.25]	1					7500					7500
Train 500 persons on OH coordination mechanism - using SOP tools for 2 days (100 per region)	1		1			145500		145500			291000
Produce and disseminate 25 copies of OH quarterly, semester bulletins	1	1	1	1	1	850	850	850	850	850	4250
Conduct annual IHR/NAPHS reviews at national and county level (annual reviews, 100 participants (40 from counties, 2 days)	1	1	1	1	1	23300	23300	23300	23300	23300	116500
Strengthen human resource capacity, information sharing and mandate of the IHR / One Health in animal, human and environmental sector											
Support 15 counties with established and functional OH platform including TWG - hold monthly meetings for 20 person per county per year	1	1	1	1	1	246000	246000	246000	246000	246000	1230000
Recruit and provide support to 8 staff (MOH, MOA, EPA, FDA, MOCI) for full functioning joint project management structure at national level for 5 years (logistics and operational support)											0
Recruit and support full functioning joint project management structure at county level (focal person) in 15 counties for five years)											0
Establish/ strengthen and support a full functional One Health Steering and Technical Committees with defined TOR for information sharing and coordination among implementers - wildlife, agriculture, and health line ministries at national level for (quarterly meetings for 45 persons 5 years	1	1	1	1	1	12700	12700	12700	12700	12700	63500

Attend international conferences and meetings for information sharing and best practices (2 persons X 1 time per year for 5 years)	1	1	1	1	1	6010	6010	6010	6010	6010	30050
Provide operational support for project management team - secretariat for 5 years											0
Procure Stationary for 5 years	1	1	1	1	1	7387.5	7387.5	7387.5	7387.5	7387.5	36937.5
Conduct 5 days on-site data verification and audit) quarterly for 5 years	1	1	1	1	1	183600	183600	183600	183600	183600	918000
Procure office equipment to support project implementation for 5 years											0
Support to One Health implementers review meetings (semi-annual) 150 persons * 3 days; conference board	1	1	1	1	1	54000	54000	54000	54000	54000	270000
Support for year-end review meetings (every year self-evaluation): 150 persons * 5 days; conference board	1	1	1	1	1	102500	102500	102500	102500	102500	512500
Support for midterm evaluation of the project (year-3 of project implementation)											0
Identify OH desk offices/IHR focal point in each line ministry	1										0
Provide 5 vehicles for IHR/one health coordination in 5 regions and fuel support]	1					300000					300000
Provide office equipment and supplies [25 computers, 20 printers and stationaries)] for IHR/one health coordination platform	1	1	1	1	1	66350	66350	66350	66350	66350	331750
Conduct simulation exercise to test coordination and information sharing mechanisms											
Establish internet connectivity and networking for national and sub national level(Modem and Reuter)	1	1	1	1	1	2450	2450	2450	2450	2450	12250
Develop/adopt SOP and Tools for simulation exercise [Hire a local consultant for one month to finalize the SOPs		1		1			3600		3600		7200
Conduct 3-day SOP validation meeting to finalize SOPs with 100 people]		1		1			28150		28150		56300
Conduct simulation exercise every year at national level (60 persons *1 day)		1	1	1			3900	3900	3900	3900	15600
Conduct simulation exercise every year at county level 50 persons * 1 day)		1	1	1	1		48750	48750	48750	48750	195000
Establish national and County OH-RRT; Develop TOR and establish OH RRTs at national and county level (Hire		1	1				34650	34650			69300
Sub Total						1,200,598	824,198	937,948	789,548	757,798	4,510,088

3. Antimicrobial Resistant

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Develop national plan and system for detection and reporting of priority AMR pathogens											
Conduct 1 day workshop to validate AMR NAP - to host 75 persons out of Monrovia [75x1x1]		1					9325				9325
Print and disseminate 500 copies of validated AMR NAP (approximately 50 pages) [500x50x1]		1					6250				6250
Mobilize resources to support implementation of AMR NAP - through grant writing/ application [0]	1	1	1	1	1	0	0	0	0	0	0
Conduct 5-days sessions to train 291 health workers, livestock officers , laboratory aides on AMR samples collection and Laboratory Technicians on the use of specialised diagnostics techniques and laboratory equipment; (35 Community Animal health workers, 15 livestock officers, 15 county surveillance officers, 96 districts health officers, 100 laboratory technicians (Animal and Food safety, Human, Environmental)) - 10 sessions of 29 persons @ [291x5x4]		1		1			129185		129185		258370
Development of a National AMR Plan for Laboratory detection and reporting											
Conduct 1-day workshop of 75 participants to develop and validate AMR laboratory detection and reporting plan [75x1x1]		1					5125				5125
Implement AMR reporting from health facilities, animal farms, laboratories that feeds into the national surveillance reporting channels [0]		1	1	1	1		0	0	0	0	0
Collect and transport food samples to the laboratory for analysis to monitor antibiotics residue in meat products at the slaughter houses in country; meet inspectors at slaughter houses on a monthly basis [12x4]	1	1	1	1	1	22500	22500	22500	22500	22500	112500

Carry out monitoring antibiotic residues in animal feed, pesticide residue in honey, in aquaculture and food products. etc; Laboratory analysis on samples collected, on a monthly basis [12x4]	1	1	1	1	1	6000	6000	6000	6000	6000	30000
Develop national AMR surveillance system											
Hold a 2 days national consultative meeting of 75 participants to develop AMR surveillance system and ensure interoperability of AMR surveillance with National system [75x2x1]		1					9500				9500
Recruit an international consultant for 3 months to review, assess and share lessons learnt from other countries on operationalization of the interoperable AMR surveillance system; and finalize the plan [1x3x1]		1					40500				40500
Conduct a 3 day workshop of 75 participants to validate the AMR interoperable surveillance plan 75x3x1]		1					44250				44250
Print and disseminate 500 copies of the validated AMR interoperable surveillance plan - approximately 75 pages [500x75x1]		1					9375				9375
Designate 20 sentinel sites for AMR surveillance in Hospitals, slaughter houses, animal farms, in the country [0]	1	1	1	1	1	0	0	0	0	0	0
Procure 20 laptop computers for AMR data reporting at the 20 sentinel sites [20x1x1]		1					30000				30000
Procure 40 smart phones for AMR data reporting at the sentinel sites [20x1x2]		1					7000				7000
Secure annual internet service agreements to support AMR data reporting at the 20 sentinel sites [1x4]	1	1	1	1	1	14400	14400	14400	14400	14400	72000
Strengthen HCAI prevention and control programs in Human and Animal Health facilities											
Conduct a 5-days training for 200 trainers on HCAI prevention and control practices and reduce the incidence of infection through effective sanitation,		1	1	1	1		15500	15500	15500	15500	62000

hygiene and infection prevention measures [50x5x4]											
Conduct a 5-days training for up to 5000 personnel on HCAI prevention and control practices and reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures [1250x5x4]		1	1	1	1		357500	357500	357500	357500	1430000
Conduct a 2-days workshop of 50 participants to review and validate the IPC policy [50x2x1]		1	1	1	1		6500	6500	6500	6500	26000
Conduct a 2-days workshop of 50 participants to review and validate the IPC operational plan [50x2x1]		1	1	1	1		6500	6500	6500	6500	26000
Print and disseminate 500 copies of the validated IPC policy - approximately 50 pages [500x50x4]		1					6250				6250
Develop guidelines for the protection of healthcare and animal care workers from HCAI. AMR Technical Working Group meeting to develop guidelines with resource materials from what other countries have done. Validation meeting for the guidelines to be held for 2 days with 40 participants, in Monrovia [40x2x1]		1					5300				5300
Print 500 copies of the guidelines (approximately 50 pages, for every health and animal care facilities [500x50x4]		1	1	1	1		6250	6250	6250	6250	25000
Institutionalize IPC in Animal care and Healthcare facilities for HCAI prevention and control											
Establish isolation units at tertiary hospital and animal clinics. Renovation and or inclusion of additional space for isolation unit for HCAI prevention and control. 20 isolation facilities yearly over four years [20x1x4]	1	1	1	1							0
Conduct 5 days workshop of 50 participants to develop ledgers, data tools, etc to be given to facilities for reporting, to support establishment of surveillance within high risk groups to promptly detect cluster of health care associated infection [50x5x1]		1					15500				15500

Print and disseminate 500 copies of 50-page ledgers to be given to facilities for reporting, to support establishment of surveillance within high risk groups to promptly detect cluster of health care associated infection [500x50x4]		1		1			16250		16250		32500
Designate trained IPC focal persons at each tertiary hospital to support establishment of a system to regularly evaluate the effectiveness of IPC measures and publish results [45x12x4]		1	1	1	1		15000	15000	15000	15000	60000
Strengthen Advocacy and stewardship for AMR											
Conduct a 2-day working session of 30 participants to develop and validate ToRs for the national task force & technical Multi-sectorial working group on AMR, as part of processes for its establishment [30x2x1]		1					4100				4100
Convene a breakfast meeting with approximately 50 parliamentarians & political leaders on AMR [50x1x4]	1	1	1	1	1	3500	3500	3500	3500	3500	17500
Conduct a 2-days workshop of approximately 45 participants to develop and validate a legislation on the use of antimicrobial agents in human ,animals, plants and the environment [45x2x1]		1					5900				5900
Collect and collate date on baseline and annual AMR burden in the country [0]		1	1	1	1		0	0	0	0	0
Conduct research activities on AMR		1	1	1	1		0	0	0	0	0
Sub Total						46400	797460	453650	599085	453650	2350245

4. Zoonotic Diseases

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Develop Epi-surveillance system for priority Zoonotic disease (domestic/wildlife) adopting One Health approach (border areas, inland)											
Establish the Epi-surveillance unit at the MoA for both animal and wildlife health at national and sub national levels (Procure Equipment for the establishment of the unit)	1					8710					8710
Provide operation supports to both animal and wildlife surveillance officers at national and sub national levels(Fuel and communication cards for surveillance)	1	1	1	1	1	168800	168800	168800	168800	168800	844000
Hire one international consultant to develop/update surveillance plan for animal and wildlife health (SOPs, guidelines and reporting tools, etc)	1					14500					14500
Conduct a 5 days workshop validate surveillance plan for animal and wildlife health (SOPs, guidelines and reporting tools, etc) - approximately 30 participants [30x5x1]	1					12050					12050
Set up active surveillance for livestock (Quarantine Officers) at all 49 PoEs	1	1	1	1	1	176400	176400	176400	176400	176400	882000
Logistical support for quarantine officers at the 49 POEs	1					78890					78890
Logistical support for quarantine officers at the 49 POEs	1	1	1	1	1	2810	2810	2810	2810	2810	14050
Conduct value chain analysis of major livestock production systems (wildlife / although not allowed it exists)	1					0					0
Conduct bi-annual risk assessment/mapping for selected zoonotic priority diseases (2 persons per region X 5 regions X 10 days	1	1	1	1	1	10250	10250	10250	10250	10250	51250

Provide logistical support for the conduct of bi-annual risk assessment/mapping for selected zoonotic priority diseases (2 persons per region X 5 regions X 10 days	1					5000					5000
Conduct a 2-day workshop to develop early warning system for ZD-Non-ZD / outbreaks - 45 participants [45x2x1]	1					5900					5900
Conduct a 2-day workshop to validate early warning system for ZD-Non-ZD / outbreaks - 30 participants [30x2x1]	1					12100					12100
Establish / strengthen multi-sectoral RRT for epi/surveillance at National / sub-National levels [0]	1										0
Conduct annual immunization campaigns for livestock diseases [1x5]	1		1		1	23000	0	23000	0	23000	69000
Conduct annual cross-border one-day meetings to harmonize and improve surveillance data sharing - target 25 participants per meeting for each of 3 borders (for neighbouring Countries) [25x3x5]	1	1	1	1	1	17325	17325	17325	17325	17325	86625
Develop and print 500 copies of IEC/ risk communication materials (10 pages) on zoonotic infections for target populations / audience (general pop, slaughterhouse, farmers, etc.) [500x10x5]]	1	1	1	1	1	1250	1250	1250	1250	1250	6250
Establish mechanisms for data sharing between MoA, MoH, and other sectors in the One Health context [0] (Hire 1 international Consultant to establish interoperability platform	1					14500					14500
Develop capacity for animal health workforce to ably detect, manage and respond to zoonotic diseases/ outbreaks, and for research											
Incentivize 375 community animal health workers at sub-National level (CAHW) [375x12x5]	1	1	1	1	1	225000	225000	225000	225000	225000	1125000
Incentivize 113 district animal health surveillance officers at sub-National level (DAHSO)	1	1	1	1	1	135600	135600	135600	135600	135600	678000

Incentivize 17 county animal health surveillance officers at sub-National level (CAHSO) [17x12x5]	1	1	1	1	1	30600	30600	30600	30600	30600	153000
Incentivize 15 Wildlife Rangers [15x12x5]	1	1	1	1	1	18000	18000	18000	18000	18000	90000
Provide incentive for 30 Quarantine officer [30x12x5]	1	1	1	1	1	10800	10800	10800	10800	10800	54000
Provide incentive for 5 Veterinarians for high Risk Counties for ZD/non ZD [5x12x5]	1	1	1	1	1	6000	6000	6000	6000	6000	30000
Recruit and incentivize 5 personnel for the national Epi-surveillance unit [5x12x4]	1	1	1	1	1	30000	30000	30000	30000	30000	150000
Develop and print 50 copies of an annual plan (approximately 10 pages) for continuous professional development for animal health personnel [50x10x4]	1	1	1	1	1	1250	1250	1250	1250	1250	6250
Conduct 5 days training for 248 animal health professional in technical areas [248x5] national and county levels	1	1		1		262000	262000		262000		786000
Conduct 5 days training for 375 CAHWs at community level	1			1		265500			265500		531000
Conduct 1 day workshop of 30 participants to validate the policy to have Vet. public health and Food Safety (Inspection) Divisions under the Livestock Department at the Ministry of Agriculture [30x1x1]	1					2200					2200
Conduct quarterly supportive supervision and monitoring to all 15 counties to ensure good agricultural practices and empowerment of farmers in food security and healthy production of food of animal origin - 10 participants two per region times 5 days		1	1	1	1		160000	160000	160000	160000	640000
Conduct 5-day workshop of 15 participants to develop the veterinary higher education curriculum [15x5]		1	0	0	0		5525				5525
Conduct 1 day stakeholder meeting # 30 participants to validate the Vet higher education curriculum [30x1]		1	0	0	0		2200				2200

Conduct 3 days workshops of 30 participants each, to develop training program for veterinary education at 2 universities [30x3x3]	1		1		1	9800		9800		9800	29400
Establish Veterinary higher education in Liberia											
Conduct 2-day workshop of 25 participants to develop legislation on AH / AD related to P&C ZD/NZD [25x2]		1				0	5525				5525
Conduct 1-day validation workshop for legislation on AH / AD related to P&C ZD/NZD [75x2]		1				0	2200				2200
Submit legislation on AH/AD related to P&C ZD/NZD to house for enactment [0]						0					
Conduct 5-days orientation meeting for 75 personnel (MoA, Police, immigration, QO, etc.) on AH legislation [75x5x4]	1		1		1	9800		9800		9800	29400
Develop legislation that allows for mandatory reporting of priority zoonotic diseases											
Conduct 2-day workshop of 25 participants to develop legislation on AH / AD related to P&C ZD/NZD [25x2]	1					3500					3500
Conduct 1-day validation workshop for legislation on AH / AD related to P&C ZD/NZD [75x2]	1					5125					5125
Submit legislation on AH/AD related to P&C ZD/NZD to house for enactment [0]											0
Conduct 5-days orientation meeting for 75 personnel (MoA, Police, immigration, QO, etc.) on AH legislation [75x5x4]	1	1	1	1	1	22625	22625	22625	22625	22625	113125
Develop capacity for rapid response to zoonotic infections/outbreaks											
Establish linkages with existing EOC/RRT at each County for a multi-sectoral approach PC&R ZD [0]											0
Conduct 2-day workshop for 45 participants to draft/review contingency plan (One Health Linked) for priority ZD / NZD [45x2*4]		1	1	1	1		5900	5900	5900	5900	23600

Designate IHR focal person at MoA (Should be the CVO) [0]											0
Sub Total						1589285	1300060	1065210	1550110	1065210	6569875

5. Food Safety

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Establish a system for surveillance of food borne pathogens											
Conduct one workshop for 5 days for 45 persons to develop food borne disease outbreak guidelines [(45x5)+(1000x50)]	1		1		1	30825		30825		30825	92475
Print 1000 copies of food borne disease outbreak guidelines (1000x50)](at least 50 pages each) for job aids	1		1		1	12500		12500		12500	37500
Conduct 1 week training for 1160 staff (15 county surveillance officers, 92 District Surveillance Officers, 800 clinicians, 75 livestock officers, 25 meat inspectors, 150 environmental health technicians) on food borne disease surveillance- detection and reporting [1160x7]	1					987810					987810
Conduct one workshop for five(5) days for 15 persons to integrate food borne disease reporting into IDSR case base form and reporting tools (15pax*5days*4years) [15x5x4]	1					22100					22100
Hire consultant to develop modules for Integrating food borne disease surveillance into FETP training over a 3 months period [1x3]	1					60000					60000
Conduct 2 working sessions (4 days per session) for 10 staff to integrate food borne diseases data into IDSR database [10x4x2]	1					69300					69300
Strengthen and establish new food testing laboratories											

Conduct five (5) days training workshop for 30 Port Health Officers on food vehicles sample collection and the use of field testing kit for food testing at points of entry [30x5x2]	1					39600					39600
Conduct 5-days' training for 10 scientists from Standards Laboratory, NPHIL and Agriculture on food microbiology, food science [10x5x2]	1	1	1	1	1	8200	8200	8200	8200	8200	41000
Hire a consultant for 3 months to develop a national food safety laboratory quality management program [1x3]	1	1	1	1	1	60000	60000	60000	60000	60000	300000
Conduct training workshop for food inspectors (Environmental Health Technicians, Commerce inspectors) on food inspection, sample collection, packaging and transportation for laboratory analysis (100pax*5days*4years) [100x5x4]	1	1	1	1	1	119000	119000	119000	119000	119000	595000
Strengthen Inter-sectoral coordination on food safety in Liberia											
Organize 5 days working session for 20 people to develop SOP for the operation of the Codex committee TWG [20x5x1]	1					6950					6950
Conduct 2 days Validation session on Codex Committee TWG SOP for 20 people [20x2x1]	1	1	1	1	1	8200	8200	8200	8200	8200	41000
Print 500 copies (at least 35 pages) of the codex TWG SOP [500x35]	1	1	1	1	1	4375	4375	4375	4375	4375	21875
Conduct 20 dissemination sessions (15 county level and 5 national) for 2 day each for 50 persons per session on Codex TWG SOP [50x2x20x1]	1	1	1	1	1	258000	258000	258000	258000	258000	1290000
Hire 1 consultant for 25 days (yearly) to develop food safety situation report on a yearly basis [1x25x4]	1	1	1	1	1	17750	17750	17750	17750	17750	88750
Conduct 4 meetings (1 day each) annually for 20 stakeholders on food safety coordination [20x1x4x4]	1	1	1	1	1	22400	22400	22400	22400	22400	112000
Adopt Codex Standards											

Conduct 3 national workshops (2 days each) for 25 participants to adopt codex standards (25pax*2days*4years) [25x2x3x4]	1	1	1	1	1	24900	24900	24900	24900	24900	124500
Conduct 25 awareness raising sessions (75 people per session) on codex standards annually in 15 counties and at national level.(75pax*25sessions*4years) [75x25x4]	1	1	1	1	1	225625	225625	225625	225625	225625	1128125
Finalize national Food Law											
Conduct 6 Lobby one-day meetings for 30 law makers/legislators for the passage of the draft food law [30x1x6]	1	1	1	1	1	13200	13200	13200	13200	13200	66000
Print 1000 copies food law into 2-page hand bills and their dissemination [1000x2]	1	1	1	1	1	500	500	500	500	500	2500
Conduct 20 dissemination sessions for the Food law (15 county level and 5 national) for 3 day each for 50 persons per session [50x3x20]	1	1	1	1	1	342000	342000	342000	342000	342000	1710000
Identify food safety focal person and establish relationship with the IHR NFP											
Conduct food safety training for health workers and appoint a food safety focal person and national and regional levels (07 people)		1					6750				6750
Sub Total						2333235	1110900	1147475	1104150	1147475	6843235

6. Biosafety and Biosecurity

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Strengthen the multi-sectorial coordination mechanism under One health approach											
Develop and enact national legislation on biosafety and biosecurity											
Conduct 3 day multi-sectorial workshop to draft legislation on biosafety and biosecurity with approximately 50 participants [50x3]	1					9500	0				9500

Conduct 1 day multi-sectorial workshop to finalize legislation on biosafety and biosecurity with approximately 50 participants [50x1]		1					3500				3500
Sensitization meeting for the legislation enactment by the House of Representatives		1					900				900
Develop a biobanking system for dangerous pathogens' storage											
Conduct a workshop for 5 persons over 5 days to Develop a repository for all specimens and pathogens stored in country [5x5]	1					2675					2675
Conduct assessment to identify laboratories that store dangerous pathogens(Assessment Tool, Exercise & report) - 2 teams of 5 members each times 5 days [5x5x2x2]		1	1				6250	6250			12500
Conduct 3 -day workshops of 10 participants each to develop national bio-banking system [10x5x3]			1					2500			2500
Implement laboratory licensure procedure											
Conduct a 3 days workshop of 30 participants to develop/review laboratory licensure guidelines [30x3]		1					6000				6000
Conduct a 1 day workshop of 25 participants to finalize streamlining of the laboratory licensure procedure [25x1]		1					1875				1875
Conduct site visits to monitor and supervise implementation of laboratory licensure guidelines & procedures to all 15 counties, annually (3 teams of 5 members) [3x5x15x4]		1	1	1	1		9375	9375	9375	9375	37500
Implement safer laboratory diagnostic techniques											
Conduct 5-days workshop of 25 participants to review laboratory safety & Biosafety manual and standard operation procedures (SOPs) [25x5]		1					8375				8375

Train 25 persons over a period of 5 days to serve as trainers on use of the laboratory safety manual [25x5]		1					18875				18875
Develop in-country training capacity for biosafety and biosecurity											
Develop and print 50 copies of the training curriculum for biosafety and biosecurity [50x1]	1		1			1250	0	1250			2500
Establish training program for biosafety and biosecurity in two universities [0]	1	1	1	1		1225	1225	1225	1225		4900
Train 50 trainers in biosafety and biosecurity including university faculty members, over two-weeks session [50x14]		1					42500				42500
Conduct multi-sectorial bi-annual short (5 days) training on biosafety and biosecurity for 25 persons per session [25x5x2x4]		1	1	1	1		30250	30250	30250	30250	121000
Monitor implement biosafety and biosecurity practices											
Conduct quarterly supervision and mentorship on biosafety and biosecurity practices in all 15 counties - 3 teams of 3 pears eact [3x3x15x4x4]		1					14250				14250
Conduct annual site supervisions in all 15 counties to monitor implementation of biosafety and biosecurity guidelines - 3 teams of 3 pears eact [3x3x15x1x4]		1	1	1	1		14250	14250	14250	14250	57000
Identify funding opportunities and secure funding for biosafety and biosecurity activities through facilitated grant writing workshops - approximately 5 participants for each 2 days workshop, quarterly [5x2x4x4]		1	1	1	1		4400	4400	4400	4400	17600
Sub Total						14650	162025	69500	59500	58275	363950

7. Immunization

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Strengthen the implementation of national immunization plans to improve coverage.											
Conduct EPI Quarterly review (3 days) for 60 persons from the county level, 10 persons from partners and 15 persons from the National level meet to review action points and recommendation from past review meeting by county to evaluate the level of progress	1	1	1	1	1	167900	167900	167900	167900	167900	839500
Strengthen quarterly supportive supervision by employing electronic supportive supervision tools to enhance real time supervision feedback and accountability for staff in 15 counties by 10 supervisors (MOH and Partners). Replacement of phone devices (100 pieces)		1	1	1	1		35000	35000	35000	35000	140000
Strengthen the capacity of human resources for immunization service deliver											
Conduct Regional training of vaccinators (1130 vaccinators x 3 days) and include a career ladder for vaccinators		1	1	1	1		198500	198500	198500	198500	794000
Build the capacity in data management, analysis and use to address data quality issues such as (over-reporting, incomplete reporting and use of correct denominators) to determine vaccination coverage.											
Conduct data quality audit (5 days in each county) in all 15 counties monthly / EPI in-depth review quarterly at county level involving 5 persons (EPI, Surveillance, CHDD, M&E and Data Manager): DSA, fuel and vehicle maintenance	1	1	1	1	1	62725	62725	62725	62725	62725	313625

Enhance quarterly data harmonization at national and sub-national levels. A team of 10 - 12 persons to conduct quarterly data harmonization at the national level. (5 days per county: DSA, fuel and vehicle maintenance) Conduct quarterly data verification exercise at health facility levels (nearly 700 health facility, 5 days per county, DSA, fuel and vehicle maintenance)		1	1	1	1		16500	16500	16500	16500	66000
Scale up urban immunization strategy											
Ensure REGULAR monthly outreach activities and Quarterly PIRI by health facilities (565) to increase access to immunization. Nearly 700 health facilities, operational support needed)	1	1	1	1	1	45750	45750	45750	45750	45750	228750
Strengthen VPD surveillance and AEFI monitoring											
Conduct at least 2 circumscribed immunization campaigns in high risk communities or areas with VPD outbreaks in all 15 counties	1	1	1	1	1	183050	183050	183050	183050	183050	915250
Train 15 CSFP on basic VPD surveillance, revamp the national AEFI committee and build capacity for field personnel for 4 days each year (14 persons * 4 days * 5 years; full conference board)		1	1	1	1		52750	52750	52750	52750	211000
Strengthen equity focus analysis and programing for immunization service delivery											
Strengthen defaulter tracking mechanisms and enhance birth registrations systems 565 health facilities catchment communities (allowances for 500 CHAs monthly * 5 years)	1	1	1	1	1	32750	32750	32750	32750	32750	163750

Engage CHA program to support vaccination activities during outreach, community engagement and defaulter tracking in 565 health facilities' catchment communities. (Allowances for 500 CHAs * 5 years)	1	1	1	1	1	32750	32750	32750	32750	32750	163750
Enhance community engagement and social mobilization using mobile technologies to send text messages every quarter and social media for education and sensitization on importance of vaccines. (Partnership with communication companies - free)	1	1	1	1	1						0
Strengthen vaccine stock management and accountability systems											
Ensure the maintenance of 200 solar direct drives and/or replace 150 aging cold chain equipment in 150 health facilities in located in fifteen counties. (Procure 150 cold chain equipment and solar panels)	1	1	1	1	1	40000	40000	40000	40000	40000	200000
Ensure the maintenance and/or replacement of aging cold chain equipment at health facilities.											
Sub Total						564925	867675	867675	867675	867675	4035625

8. Laboratory

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Expand and decentralize IDSR diagnostic capacity - develop new diagnostic capacity											
Establish diagnostic capacity for Dengue at the NRL [0]	1	1									0
Establish diagnostic capacity for influenza at two sentinel sites [0]	1	1									0
Establish multiplex diagnostic capacity at NRL [0]		1	1								0
Roll-out bacteriology testing capacity at 15 county hospital laboratories [0]			1								0
Implement GeenXpert testing at 20 laboratory facilities in the 15 counties [0]		1	1	1							0
Decentralize IDSR priority diseases diagnostic testing to three regionally located laboratories [0]		1	1								0
Strengthen laboratory information system for improved lab data management and reporting											
Finalize piloting of Bica system at 2 laboratories - 1 regional and 1 national [0]	1		1								0
Procure a total of 5 network servers to implement LIS at 19 laboratories (16 human health - NRL, regional & county labs; 2 vet and 1 NSL) [(2x1)+(1x1)]	1	1				5000	5000				10000
Procure a total of 20 computers (desktops) to implement LIS at at 19 laboratories (16 human health - NRL, regional & county labs; 2 vet and 1 NSL) [(10x1)+(10x1)]	1	1				9000	9000				18000
Procure a total of 20 computers (desktops) to replace LIS desktops at at 19 laboratories (16 human health - NRL, regional & county labs; 2 vet and 1 NSL) [(10x1)+(10x1)]		0	1	1				9000	9000		18000

Conduct 5 days training for a total of 40 personnel (data clerks) (at each laboratory) to implement LIS at 19 laboratories (16 human health - NRL, regional & county labs; 2 vet and 1 NSL) [(20x5)+(20x5)]	1	1				21750	21750				43500
Strengthen technical capacity for laboratory confirmation of disease outbreaks											
Conduct laboratory personnel census in the 15 counties in human, animal, justice and commerce sectors [6 persons/region*6days*5regions)	1				1	17300				17300	34600
Recruit 5 laboratory safety officers, 5 quality officers; and 45 laboratory technologists [(5x1)+(5x1)+(45x1)]	1	1	1	1	1	330000	330000	330000	330000	330000	1650000
Conduct 5 days training for a total of 400 laboratory personnel in specific laboratory diagnostics - dengue, influenza, bacteriology, multi-plex technology; over a total period of 3 months [(20x5x4)+(20x5x4)+(20x5x4)+(20x5x4)+(20x5x4)]	1	1	1	1	1	496800	496800	496800	496800	496800	2484000
Conduct monthly county-level laboratory supportive supervision visits to laboratory facilities per county [15x12x5]	1	1	1	1	1	138000	138000	138000	138000	138000	690000
Conducted quarterly supportive supervision to all laboratory facilities in all 15 counties from the national level [15x4x5]	1	1	1	1	1	360000	360000	360000	360000	360000	1800000
Establish comprehensive specimen referral network in the country											
Identify and designate specimen pick-points national wide [0]	1	1	1	1	1						0
Procure 117 AG 100 Yamaha motorbikes for specimen referral system (92 districts, and 15 CDOs) [117x1]	1					468000					468000
Procure gasoline for motorbikes at a rate of 1200 gallons per month for the entire country [1200x12x5]	1	1	1	1	1	72000	72000	72000	72000	72000	360000
Establish a maintenance contract for motorbikes at a rate of 15,000 USD per month [15000x12x5] - cost included	1	1	1	1	1	180000	180000	180000	180000	180000	900000

International referral of specimens for advanced diagnosis as well external quality assurance, at an approximate rate of 5 shipments per month [5x12x]	1	1	1	1	1	15000	15000	15000	15000	15000	75000
Conduct quarterly supportive supervision of specimen transportation in all 15 counties, at county and district level [15x4x5]	1	1	1	1	1	40000	40000	40000	40000	40000	200000
Conduct 5 days' training for a total of 1500 personnel in safe specimen collection, packaging and transportation*35 Trainings [(300x5)+(300x5)+(300x5)+(300x5)+(300x5)]		1	1	1	1		1034000	1034000	1034000	1034000	4136000
Implement adherence to cold chain management of specimens through procurement, establishment and maintenance of cold chain equipment at relay points as well as during transportation											
Designate cold chain points at the sub-national/district levels [0]	1										0
Procure and install 15 freezers at designated relay points [(8x1)+(7x1)]	1					12000					12000
Procure and install fridges at 30 transit points [(15x1)+(15x1)]	1					24000					24000
Procure and supply equipment, reagents, consumable											
Conduct nation-wide stock inventory for laboratory reagents and consumables, equipment [1x1x5]	1	1	1	1	1	12000	12000	12000	12000	12000	60000
Procure laboratory regeants for public health disease diagnostics - measles, rubella, yellow fever, Ebola, Lassa fever, bacteriology, dengue, monkey pox; annually [1x1x5]	1	1	1	1	1	188550	188550	188550	188550	188550	942750
Procure laboratory reagents for 300 clinical/ facility based diagnostic centres, annually [300x1x5]	1	1	1	1	1	10000	10000	10000	10000	10000	50000
Procure rapid diagnostic tests kits for 300 clinical/facility based diagnostic centres - malaria, HIV, pregnancy, syphilis, hepatitis B, hepatitis C; annually	1	1	1	1	1	140000	140000	140000	140000	140000	700000
Procure laboratory consumables for laboratory facilities (multi-sectorial); annually	1	1	1	1	1	26000	26000	26000	26000	26000	130000

Procure laboratory reagents for zoonotic diseases diagnostics, annually [1x1x5]	1	1	1	1	1	948000	948000	948000	948000	948000	4740000
Procure laboratory reagents for food analysis, annually [1x1x5]	1	1	1	1	1	15699	15699	15699	15699	15699	78495
Procure laboratory regeants for water and chemical analysis, annually [1x1x5]	1	1	1	1	1	10000	10000	10000	10000	10000	50000
Procure laboratory reagents for animal disease diagnostics (vet lab), annually [1x1x5]	1	1	1	1	1	948000	948000	948000	948000	948000	4740000
Enhance equipment maintenance, management & certification & facility management											
Develop an annual equipment maintenance plan		1					25125				25125
Procure two vehicles for the biomedical engineering team [1x2]	1					120000					120000
Conduct routine (quarterly) equipment maintenance in all 15 counties. This will require DSA for approximately 5 people per quarter and approximately 300 gallons of fuel for transportation per month [(5x15x12x5)+(300x12x5)]	1	1	1	1	1	40000	40000	40000	40000	40000	200000
Conduct equipment repair as needed [0]	1	1	1	1	1	5000	5000	5000	5000	5000	25000
Finalize key lab documents (lab policy , strategic plans, guidelines)											
Conduct one-day workshop to validate and endorse the laboratory policy - approximately 100 participants (40 from national level, 60 from counties) [(40x1)+(60x1)]	1					20600					20600
Conduct 2-day workshop to validate and endorse the national laboratory strategic plan for NPHIL/MOH - approximately 50 participants (15 from national level, 35 from counties) [(15x1)+(15x1)]	1					8950					8950
Conduct 3-day working session to develop MoH laboratory strategic plan for NPHIL/MOH - approximately 35 participants [50x3x1]	1					8925					8925
Conduct a 3 day workshop to develop laboratory strategic plan for animal health- approximately 25 participants [25x3x1]	1					5125					5125

Conduct a 3 day workshop to validate laboratory strategic plan for animal health- approximately 40 participants [40x3x1]	1					7550					7550
Conduct a 3 day workshop to develop laboratory strategic plan for environmental health - approximately 25 participants [25x3x1]	1					5125					5125
Conduct a 1 day workshop to validate laboratory strategic plan for environmental health - approximately 40 participants [40x1x1]	1					5450					5450
Conduct a 3 day workshop to develop laboratory quality manual - approximately 25 participants [25x3x1]	1					5125					5125
Conduct a 3 day workshop to develop and validate laboratory quality manual - approximately 40 participants [40x1x1]	1					5450					5450
Conduct 2-day workshop to review and update the laboratory standardization guidelines, approximately 40 participants [40x2x2]	1					5300					5300
Conduct 1-day workshop of 75 participants to develop laboratory commodities catalogue for Liberia [75x1x2]	1					5125					5125
Conduct SLIPTA/or other suitable checklists for baseline assessment in all the 27 laboratories - will require 2 days DSA for approximately 2 people per laboratory, and approximately 100 gallons of fuel for a trip to each laboratory [(3x27x2)+(100x27)]						0	0	0	0	0	0
Implement quality improvement projects at all 27 laboratories [0]	1	1	1	1	1	16000	16000	16000	16000	16000	80000
Conduct 5 days training for quality focal persons at all the 27 laboratories* trainings						0	0	0	0	0	0

Conduct monthly mentorship visits at all the 27 laboratories to provide mentorship in quality management [10x12x5]	1	1	1	1	1	16000	16000	16000	16000	16000	80000
Conduct exit/follow-up/status quality assessments for all the 27 laboratories - will require 2 days DSA for approximately 2 people per laboratory, and approximately 100 gallons of fuel for a trip to each laboratory [((2x27x2)+(100x27))x2]	1	1	1	1	1	10400	10400	10400	10400	10400	52000
Enrol 5 laboratories into lab accreditation system - 3 human health sector, 1 animal health sector and 1 food/commerce sector											
Identify the potential accreditation body and create rapport with them [0]						0	0	0	0	0	0
Conduct pre-accreditation assessment of all 5 laboratories- will require 2 days DSA for approximately 3 international personnel per laboratory, and approximately 100 gallons of fuel for a trip to each laboratory [(3x5x2)+(100x3)]	1	1	1	1	1	16000	16000	16000	16000	16000	80000
Implement pre-accreditation assessment recommendation/quality improvement projects at all 27 laboratories [0]						0	0	0	0	0	0
Conduct accreditation assessment of all 5 laboratories- will require 2 days DSA for approximately 2 international personnel per laboratory, and approximately 100 gallons of fuel for a trip to each laboratory [(3x5x2)+(100x3)]	1	1	1	1	1	16000	16000	16000	16000	16000	80000
Pay accreditation fees for all 5 laboratories (5x1]	1	1	1	1	1	10400	10400	10400	10400	10400	52000
Develop and implement licensing procedures for laboratories as well as personnel											
Conduct a 1-day workshop to review and validate laboratory licensure guidelines - approximately 40 participants [40x1]		1					4150				4150
Conduct biannual site visits to all the 15 counties to monitor adherence to licensure guidelines - each team will have approximately 2 people requiring 3 days DSA	1	1	1	1	1	36000	36000	36000	36000	36000	180000

and fuel of approximately 200 gallons per county [((3x15x3x2)+(200x15x2))x4]											
Sub Total						4855624	5194874	5138849	5138849	5147149	25475345

9. Surveillance

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Strengthen capacity for IDSR and eIDSR implementation at all levels under one health platform											
Conduct ToT training for national staff in IDSR (30Pax*6days*2 trainings)		1	1	0	0		451,700	451,700			903,400
Train national and county personnel in IDSR (CSOs, DSO, TB-FPs, NTD-FPs, NCDS, HF staff, PoEs, Environmental staff, CACs, CLOs and police focal person on IDSR) (30Pax*5days*10 trainings)		1	1	1	1		614,740	614,740	614,740	614,740	2,458,960
Train 2010 frontline health care workers on IDSR (30Pax*5days*67 trainings)		1	1	1	1		3,066,560	3,066,560	3,066,560	3,066,560	12,266,240
Nominate health facility surveillance focal persons in all health facilities (no cost)			1								-
Conduct 2 days refresher training for 800 HF surveillance focal persons (30Pax*2Days*26 trainings)		1	1	1			266,500	266,500	266,500		799,500
Conduct 2 days training of 210 clinicians in clinicians role in IDSR (30Pax*2 days*7 trainings)		1	1				70,000	70,000			140,000
Strengthen implementation of EBS											
Hire 1 international consultant to review the current status of EBS implementation (20 days)	1		1			14,500		14,500			29,000
Organize a workshop to review status of implementation of EBS (60Pax*4 days)	1					29,700					29,700
Re-orient CHVs ,CHAs, CAHWs, VAs in all counties on EBS (5,000 people x 2 days)	1	1				######	1,870,750				3,741,500
Train traditional practitioners on EBS-Priority diseases, conditions and events (300 people x 2 days)	1	1				37,000	37,000				74,000
Maintain the hot line for EBS (5 years)	1	1	1	1	1	264,000	264,000	264,000	264,000	264,000	1,320,000

Support 91 health districts to respond and investigate rumours once every quarter (4Pax*2days*20 quarters*91 districts)	1	1	1	1	1	59,240	59,240	59,240	59,240	59,240	296,200
Strengthen capacity for animal priority diseases surveillance at all levels											
Organize a meeting to constitute TWG to support development of animal diseases surveillance system (30Pax*1 day)	1					2,200					2,200
Hold series of workshops to develop TG, training material and reporting tools (60Pax*5 days*4 workshops)	1	1				74,400	74,400				148,800
Organize a workshop to validate TG, training material and reporting tools (60Pax*3 days)		1					11,500				11,500
Conduct ToT of 120 personnel on animal priority diseases surveillance at national and regional levels (30Pax*5days*4 trainings)		1					215,800				215,800
Conduct training of 300 personnel from all sectors on animal priority diseases surveillance at national and regional levels (30Pax*5days*10 trainings)		1	1				148,000	148,000			296,000
Conduct training of 120 community animal health surveillance officers on priority animal diseases (40Pax*3 days*3 trainings)		1	1				34,650	34,650			69,300
Conduct annual comprehensive livestock census for animal movement, transboundary, domestic and wildlife population maps with GIS (6Pax*14days*15 counties)	1		1			268,050		268,050			536,100
Conduct risk assessment and identify diseases and events of potential threats including functional reporting sites in 15 counties (30Pax*4days*15 counties)	1					225,750					225,750
Support data analysis and prepare report (10Pax*5days)	1	1	1	1	1	37,500	37,500	37,500	37,500	37,500	187,500
Revise National IDSR strategy based on the AFRO-IDSR guideline 3rd Edition											

Hold a I day stake holders consultative meeting on the AFRO-IDSR guideline 3rd Edition revision (50Pazx*1 day)		1					3,500				3,500
Hold a series of guideline adaptation workshops (60Pax*5days*3 workshops)		1					55,050				55,050
Hold a revised guideline validation workshop with all stakeholders (70 persons x 3 days)		1					22,900				22,900
Print and disseminate copies of the approved IDSR guideline (2000 copies), training modules (2000), reporting tools (6000)	1	1	1	1	1	771,958	771,958	771,958	771,958	771,958	3,859,790
Re-produce / print and disseminated IDSR SOPs, job aids, reporting tools, and case definitions, etc (10,000 copies of each)	1	1	1	1	1	140,000	140,000	140,000	140,000	140,000	700,000
Building the capacity for real time electronic reporting.											
Procure and distribute tablets to CSOs, DSOs (22 ZSOs, 91 DSOs, 17 CSOs) for reporting	1					32500					32500
Procure 130 computers for surveillance officers	1					130000					130000
Maintain ICT infrastructure	1	1	1	1	1	5000	5000	5000	5000	5000	25000
One international consultant to develop HIE architecture, including global facility registry, reference data, GIS layers, shared health record, to support interoperability between MOH and MOA(I consultant x 20 days)		1	1	1	1		14500	14500	14500	14500	58000
Roll out an electronic web-based reporting and data management system in 15 counties											
Develop guidelines for roll out of an electronic web-based reporting system (25people x 4 days)	1					6750					6750
Procure communication equipment for electronic web based reporting system for all reporting levels (1000 android phone pieces)	1					175000					175000
Integrate the system with other reporting platforms in MOH, MOA and other relevant sectors	1										0
Conduct ToT of 60 people at national and regional level on eIDSR (30Pax*3 days*2 trainings)		1					53900				53900

Train 1000 people at National, County, district and Health facility Surveillance focal persons PoEs, MOA focal person on eIDSR (40Pax*2days*25trainings)		1	1	1	1		59750	59750	59750	59750	239000
Develop HIE architecture, including global facility registry, reference data, GIS layers, shared health record, to support interoperability between MOH and MOA (I consultant x 14 days)		1					14500				14500
Build technical capacity for data analysis, management and use at national and sub-national level											
Workshop to develop Data management tool (25 people x 5days)		1					8375				8375
Conduct data analysis and harmonization between IDSR, Laboratory and DHIS2 quarterly at national level (30Pax*1 day*20 quarters)	1	1	1	1	1	8800	8800	8800	8800	8800	44000
Conduct data analysis and harmonization between IDSR, Laboratory and DHIS2 monthly at county level (10Pax*I day*60 months)	1	1	1	1	1	7800	7800	7800	7800	7800	39000
Conduct ToT training for national staff in data analysis and management (25 Pax*5days)	1	1				7125	7125				14250
Train County data managers and district clerks on data analysis and management (130 Pax*3 days*7 trainings)		1	1	1	1		308350	308350	308350	308350	1233400
Train 210 frontline health care workers on data analysis and management (30Pax*3 days*7 trainings)		1	1	1	1		57050	57050	57050	57050	228200
Supervise, monitor and evaluate IDSR processes and procedures, including systematic data quality audits (DQA											
Organize a workshop to review performance indicators and DQA tools for data quality, management and use (30Pax*2 days*2)		1	1	1	1		11900	11900	11900	11900	47600
Conduct annual DQA in all 15 counties (4Pax*7days*7 teams)		1	1	1	1		51520	51520	51520	51520	206080

IDSR Health facilities indicators weekly and monthly monitoring (Logistics for DSOs/ZSOs and CSOs):-150 people x 200$ operational cost x 60 months)	1	1	1	1	1	360000	360000	360000	360000	360000	1800000
Building the capacity for syndromic surveillance under one health approach in all levels											
Harmonize guidelines for syndromic surveillance to reflect one health approach (25*Pax*3days)	1	1	1	1	1	5125	5125	5125	5125	5125	25625
Conduct ToT training for national staff in priority diseases in animal and human health with emphasis on use of case definitions (25*Pax*3days)	1	1	1	1	1	5125	5125	5125	5125	5125	25625
Train 180 County and district staff (all sectors) in priority diseases in animal and human health with emphasis on use of case definitions (30Pax*3 days*6 trainings)	1	1	1	1	1						
Sensitize 2500 health workers on priority diseases in animal and human health with emphasis on use of case definitions (50Pax*1 day*50 trainings)	1	1	1	1	1	342500	342500	342500	342500	342500	1712500
Establish sentinel site for Influenza surveillance											
Adopt influenza surveillance training materials, protocols, reporting tools (20 Participant*1day)		1					1550				1550
Conduct training of the staff for selected site (25 staff for 5 days)		1					8375				8375
Procure test kits and supplies		1									0
Establish influenza surveillance in two sites and train 20 selected staffs*5 days		1					6950				6950
Strengthen the testing capacity for IDSR Priority diseases to support syndromic surveillance											
Print and distribute 5000 Standard case definition charts and pocket booklets		1					150000				150000
Procure and supply 200,000 IDSR priority diseases sample collection materials		1									0
Procure and supply test kits and reagents for IDSR priority diseases test kits		1									0

Support priority diseases samples transportation for testing		1									0
Sub Total						4880773	9703943	7444818	6457918	6191418	34678870

10. Reporting

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Establish and strengthen capacity for MOA reporting from all levels											
Conduct quarterly visits by the CLOs from the county to the districts (operational and logistical support) 30 PA *3*4	1	1	1	1	1	7500	7500	7500	7500	7500	37500
Conduct training for CLOs and CAHWs, VAs on disease recognition and sample collection, new case definition of animal diseases and events (80 people X 7 days)	1					41900					41900
Conduct Quarterly supportive supervisions from the national to the county level (10 PA*4 visits* 5 years)	1	1	1	1	1	7000	7000	7000	7000	7000	35000
Establish a central database at MOA/ establish a functional Epi unit for disease reporting											
Procure and install equipment (3 servers, 5 computers, 5 printers) for Epi unit at MoA	1					8600					8600
Recruit staff for Epi unit at MOA (5 people x 500$ x 60 months)	1	1	1	1	1	30000	30000	30000	30000	30000	150000
Recruit staff at the community, district and county levels for animal disease surveillance and reporting											0
Train the Epi staff and field staff in disease reporting and the use of reporting tools database (20 people x 2days)	1	1	1	1	1	2900	2900	2900	2900	2900	14500
Build capacity for IHR reporting within MOH and MOA including training personnel, IHR NFP and OIE											
Establish IHR focal point at MoA (Office equipment, IHR NFP for MOA)	1										0
Train IHR focal person at MoH, and person at OIE in IHR core capacities and reporting PHEICS	1	1	1	1	1	7000	7000	7000	7000	7000	35000
Provide operational support to IHR NFP at MoH and MOA	1	1	1	1	1	12120	12120	12120	12120	12120	60600
Provide refresher trainings to health workers on IHR and decision instrument for national and county IHR focal points(20 People)	1	1	1	1	1	14450	14450	14450	14450	14450	72250

Establish one health committees at all levels											
Conduct training of line ministries representatves at the county level in animal case definitions, nominate a focal person/IHR focal point in each line ministry to be part of the committee (200 people X 2 days)		1	1				29800	29800			59600
Conduct monthly meeting between IHR focal points from the line ministries (one health meetings) from the national and county levels	1	1	1	1	1						0
Conduct regular monthly meeting between offices of IHR and OIE delegates under the one health platform	1	1	1	1	1						0
Strengthen the routine IDSR reporting and feedback system at national and subnational levels											
Disseminate IDSR reporting tool to all HFs reporting levels(Logistics and supplies:- stationery, cartridges and maintenance of printers in 15 counties)	1										0
Provide mentorship from national to county level on reporting of IDSR and IHR notifiable conditions, events and diseases (2 people X 3 days X 15 counties)	1	1	1	1	1	36250	36250	36250	36250	36250	181250
Conduct Supportive supervision, mentorship and feedback from CSO to DSO (1 x 7 days x 12 months x 15 counties)	1	1	1	1	1	52500	52500	52500	52500	52500	262500
Active case surveillance by DSOs according to district HFs prioritisation and support HF surveillance FPs for reporting IDSR (114 dsoS/ZSOs routine work)	1	1	1	1	1						0
Coordinate Community event based reporting and in put in IDSR reporting system (ensure CHVs/CHAs, CHSS have adequate reporting tools)	1	1	1	1	1						0
Sub Total						220220	199520	199520	169720	169720	958700

11. Workforce Development

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Develop skilled and competent health workforce for effective implementation of IHR (2005) under One Health Approach											
Conduct national health workforce need assessment to provide baseline information on current capacity, needed capacity, and gaps (1 local consultant for 1 month): consultancy fee		1					3600			3600	7200
Conduct sub-national health workforce need assessment to provide baseline information on current capacity, needed capacity, and gaps for 100HW*5days*1		1					18750				18750
Identify national and sub-national structures involved in human, animal, and environmental health (e.g., rapid response teams, surveillance, national level institutions)		1									0
Develop mechanism for identifying and tracking candidates for training to address gaps		1									0
Train 100 personnel in human and animal health courses at diploma level			1	1	1			600000	600000	600000	1800000
Train 100 personnel in human and animal health courses at degree level			1	1	1			2400000	2400000	2400000	7200000
Train 50 personnel in human and animal health at masters level			1	1	1			1000000	1000000	1000000	3000000
Train 25 personnel in human and animal health at PhD level			1	1	1			1875000	1875000	1875000	5625000
Train 200 persons in basic FETP and FETPV at the University of Liberia: Per cohort expenses: DSA for participants (16 days per person) Feeding for training (16 days), Feeding for graduation ceremony		1	1	1	1		1616000	1616000	1616000	1616000	6464000
Establish two levels (Frontline and Intermediate) of FETP in Country with OH approach											
DSA for Field Mentorship (6 persons X 36 days) Stationeries, Printing		1	1	1	1		25200	25200	25200	25200	100800

Train 60 persons in Intermediate training (4 cohorts): DSA for participants (15persons X 54 days) Feeding for training (22 person X 54 days), Feeding for graduation ceremony (40persons X 1day)		1					11536800				11536800
) DSA for Field Mentorship (6 persons X 72 days) Stationeries, Printing		1	1	1	1		167280	167280	167280	167280	669120
Identify institution for housing the FETP and FETP programs locally and sustainably		1	1	1	1						0
Establish the MPH program at the University of Liberia with a One Health approach											
Train 20 persons in One Health at the MPH level (University of Liberia) for two years* 1		1					1864700				1864700
Facilitate training of 10 PhD students in One Health (international) to serve as faculty for supporting MPH program		1					1023600				1023600
Address the gaps in epidemiology training through external training opportunities and exchange visits											
Train 5 persons in FELTP Masters Program in Ghana (training package: tuition fee, accommodation, transport, stipend, books, etc)		1					603050				603050
Develop and update Health Workforce Strategies for animal, human, and environmental health sectors											
Scale up and improve quality targeted training programs, recruit hire and develop qualified educators to deliver high calibre training programs	1	1	1	1	1						0
Hire consultant to develop workforce strategy (1 international consultant for 1 month. Flight ticket, per diem, lodging, consultation)		1					14500				14500
Identify and collect existing HR strategies documents that affect OH		1									0
Develop One Health workforce strategy(DSA, feeding, Transportation for 25 persons, hall rental, stationeries, printing for 3 days)		1					8375				8375
Workshop to validate strategy (DSA, feeding, Transportation for 25 persons, hall rental, stationeries, printing for 3 days)		1					12725				12725
Implement strategies and polices to attract and retain the trained workforce in human, animal and environmental sectors											
Attract qualified candidates to join workforce	1	1	1	1	1						0

Develop a motivation package that includes housing, incentive, advanced training, or other components	1	1									0
Institute plans to ensure appraisal system for promotion		1	1	1	1						0
1) Conduct assessment of job satisfaction : a) communication cards, b) printing of questionnaires, c) fuel		1	1	1	1						0
Sub Total							16894580	7683480	7683480	7687080	39948620

12. Ports of Entry (PoE)

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Review list of designated PoE, with the inclusion of land crossings Ports of Entry											
Conduct assessment visit to 39 PoEs (8Pax*10 days)	1			1		16000			16000		32000
Conduct meeting for review of designated PoEs	1	1	1	1	1	0	0	0	0	0	0
Develop SOPs, guidelines and reporting tools for port health services											
Conduct meeting to develop SOPs, guidelines and tools for port health services (40PAx*3 days*3 meetings)	1		1		1	34650		34650		34650	103950
Conduct meeting for validation of SOPs, guidelines and tools for port health services (40PAx*2 days)	1					5300					5300
Print and disseminate Informational material (SOPs and guidelines (5000 copies A4)	1					125000					125000
Train personnel working at PoEs (health and non-health) on the SOPs, guidelines and reporting tools (50Pax*3*5 trainings) total 250 people targeted	1				1	49050				49050	98100
Strengthen the capacity of designated PoEs in IHR requirement											
Conduct a baseline needs assessment at key PoEs and identify needs (39POE) (8p*10days)	1		1		1	11000		11000		11000	33000
Procure desktop computers for 39 PoEs (39 computers, Extension core, Backup, Anti Virus, Multi function Printers, internet hotspot, cartridge,)											0

Procure set of office furniture for 39 PoEs (officer Chairs, Visitor chairs, office Desk, cabinet, A4 Papers, Ledgers, Pens, Folders)	1					34620					34620
Procure solar system for 18 PoEs	1					143300					143300
Procure 39 PoE Safety Gears(Reflector, Boot, Helmet, Rain Coat, Lab gown)	1					0					0
Procure Wheel Chairs for 39 POE	1					15600					15600
Procure 20 first Aid kit for 39 PoE	1					35100					35100
Procure Vehicle for staffs at central level	1					60000					60000
Procure motorcycle for 20 PoE	1					72000					72000
Conduct refresher training for port health staff in vector control (250 people x 2 daysx 4 years)	1	1	1	1	1	6500	6500	6500	6500	6500	32500
Procure PPE for PoEs(2500 tvet suits,2500 googles,100 rain boots,250 boxes of clean gloves,100 face shield)	1					0					0
Strengthen cross-border collaboration with neighbouring countries											
Form border committees at 39 PoEs	1										0
Develop national cross border frame work for public health emergencies (20people x 1 days)	1					1550					1550
Support quarterly cross border committee meetings with Guinea, Sierra Leone and Corte De Voire (100people x 4 x 5 years)	1					395000					395000
Develop MOUs between designated PoEs and their referral facilities											
Conduct monthly coordination meetings(40people x 1 x 12months x 4 years)											0
Draft MOU and its validation on referral mechanism (10 people x 2day)											0
Strengthen capacity for vaccination services at 14 PoEs											
Procure cold chain equipment for 4 PoEs											0
Procure and supply yellow fever vaccines and other consumables to 14 PoEs											0
Review and update Integrated Border Management Strategy											

Conduct technical working session to review developed MOUs, SOPs with clear roles and responsibilities that reflects the emergency health response (20 people x 1 day)	1	1	1	1	1	7750	7750	7750	7750	7750	38750
Onsite hand on training/simulations exercise to relevant authorities operating at designated PoE (LIS, Port Health, LNP, Quarantine officer, DEA, Custom, ECOWAS officer etc) (17persons *2days)	1	1	1	1	1	19450	19450	19450	19450	19450	97250
Develop a national contingency plan for port health services											
Organize workshop to develop national contingency plan for PoEs (30 participants for two days (hall rental x 3 days, feeding of 45 participants X 3 days, DSA, transportation reimbursement, PA system, stationeries)	1					14325					14325
Meeting for validation of the contingency plan (45 people x 3 days) hall rental ,DSA, transportation reimbursement, PA system and stationeries)	1					18125					18125
Print 100 copies of validated documents for dissemination	1					1250					1250
Sensitize stake holders at national and subnational level on validated documents (50 people at national level x 1 day, 250 people sub national x 1 day)	1					89400					89400
Conduct 2 simulation exercise per year to test the PoEs contingency plan (40Pax*3days*5 years) x 12 counties	1	1	1	1	1	10780	10780	10780	10780	10780	53900
Validate contingency plan (50 participants for two days (hall rental x 3 days, feeding of 45 participants X 3 days, DSA, transportation reimbursement, PA system, stationeries)	1					9500					9500
Sensitize Personnel on the plan at each POE (15 people x 39 PoEs*1day)	1					7575					7575
Map existing resources and develop inventory for emergency response											
Coordinate with neighbouring countries to Map existing resources in border regions (Sierra Leone, Guinea, Ivory Coast)20p*5days	0	0	0	0	0	0					0

Develop inventory of existing boarder facilities by service type and other resources (IPC, Isolation, etc) 8p*4days	0	0	0	0	0	0					0
Sub Total						1E+06	44480	90130	60480	139180	1,517,095

13. Preparedness

Key Activities	**Implementation period**					**Total cost per year**					**Overall cost**
	2018	***2019***	***2020***	***2021***	***2022***	***2018***	***2019***	***2020***	***2021***	***2022***	
Develop the National Multi-hazard plan											
Conduct a day consultative meeting to identify & confirm funding source; Requirements: Snacks for 40 persons, stationery (40Pax*1)	1					2850					2850
Conduct one day meeting of 50 participants to establish a TWG.		1									0
Conduct technical working session once a week for 2 months. Transportation &lunch for 10 persons		1			1						0
Hire1TAs (1 international) to support the plan development for 5 days		1					4750				4750
Hire 1 TAs (1 local) to support the plan development for 15 days		1					2700				2700
Conduct 3 days validation meeting to endorse Multi hazard plan; (50Pax*3 days*3 meeting) participants DSA, feeding, transportation, stationary, hall rental		1			1		20900			20900	41800
Print and disseminate 50 copies * 100 pages of validated plan to stakeholders		1			1		1250			1250	2500
Test the multi-hazard plan											
Conduct simulations exercises (80Pax*2days*1 time)	1		1		1	18200		18200		18200	54600
Conduct an after Action review and reporting (50Pax*2days)	1	1	1	1	1	65000	65000	65000	65000	65000	325000
Strengthen permanent isolation capacity in selected hospitals											
Conduct assessment of hospitals to evaluate current isolation status. (4pax5 teams*3days for 1years)	1		1			58750		58750			117500

Organize meeting to develop health facility isolation capacity action plan		1									0
Conduct External monitoring of health facility isolation capacity action plan implementation (4pax5teams*for 4 years)	1	1	1	1	1	12500	12500	12500	12500	12500	62500
Meet to develop a national isolation management protocol for county hospitals(20pax*3days)		1					12350				12350
Meet to develop national isolation management referral pathway protocol(15pax*3 days)		1					9075				9075
Conduct orientation workshop on the use of referral pathways protocol(40pax*1days)		1					2850				2850
Print and disseminate 50 copies * 100 pages of isolation management protocol		1		1			1250		1250		2500
Develop occupational health and safety guideline for healthcare industries{To be placed under workforce development)											
Conduct key stakeholders session to develop workforce safety guidelines for both HFs and industries (working session X 3 days, 20 participants)		1					4250				4250
Validate workforce safety guidelines for health facilities and industries(25pa*1day)		1					1875				1875
Print and disseminate workforce guidelines (200 copies * 50 pages) to all partners		1					2500				2500
Conduct 2 stakeholders workshops to develop healthcare industry OH&s guidelines (2 * 20 persons* 5 days)		1					13900				13900
Conduct 1 stakeholders session to validate draft OH&S guidelines (50 persons* 1; DSA for 15 persons from the counties)		1					23000				23000
Print 2000 copies * 50 pages of the OH&S guidelines		1					25000				25000
Conduct training of 2000 health care workers on OH&S in the healthcare industry (2000 * 3 days * 1 year)		1					362150				362150
Conduct 15 county level stakeholders dissemination sessions on the OH&S guidelines (75 persons * 2 days * 15 Counties)		1									0

Establish a pre-employment screening and counselling program for (HIV, HBV, diseases) healthcare workers (no cost)		1									0
Conduct vaccination of healthcare workers-clinicians, waste handlers, laboratorians (pre exposure and post exposure prophylaxis) for hepatitis B and HIV (this is done in collaboration with other programs but there is need to purchase the vaccines).	1	1	1	1	1	6000	6000	6000	6000	6000	30000
Establish a reporting mechanism for health facility related Occupational Health &S slips, falls, injuries, deaths		1									0
Procure 50,000 PPE sets for health system	1		1		1	500000		500000		500000	1500000
Distribute Personal Protective equipment (PPEs) to healthcare institutions (vehicle rental for distribution and allowances (DSA) for 5 logistics staff).	1		1		1	3375		3375		3375	10125
Strengthen capacity for multi-disciplinary RRTs at national & sub-national levels											
Update and maintain Roster of experts at both national and subnational levels for potential response		1	1	1	1		0	0	0	0	0
Develop a comprehensive multi hazards training package; (25Pax*5 days)		1					8375				8375
Conduct a training for 450 personnel in RR (30Pax*6days*15 counties)		1			1		2569500			2569500	5139000
Establish a real time data base of multi hazards response experts (no cost)		1									0
Strengthened institutional and legal system for disaster risk reduction in Liberia											
Support multi sectoral coordination meeting	1	1	1	1	1	4100	4100	4100	4100	4100	20500
Conduct a stakeholder meeting to review existing building codes and land use permit											0
Conduct all hazards risk mapping across the Country											
Conduct stakeholders meeting to plan for mapping (45Pax*1day)	1					3175					3175
Train facilitators on tools to be used (15Pax*1)	1					1225					1225
Organize meeting to conduct PH hazard assessment annually (60Pax*3days*5years)	1					56250					56250
Support Secretariat retreat to prepare report (15Pax*3days*5years)	1					172125					172125

Organize meeting to validate country PH risk profile report (80 persons x 2 days)	1					10100					10100
Organize meeting to review country PH Multi-hazard plan (60Pax*3days*4years)	1					45000					45000
Develop communication strategy and coordination mechanism for all hazards (hire 1 local consultant for 5 days to lead development of the communication strategy	1					1260					1260
Validate the communication strategy (75 people * 2 days)	1					9500					9500
Print and disseminate Communication strategy 150 copies * 25 pages	1					937.5					937.5
Develop informational materials to increase DRR awareness at all levels	1	1	1	1	1	5000	5000	5000	5000	5000	25000
Print and disseminate 1000 copies * 25 pages of country PH hazard profile	1			1		6250			6250		12500
Strengthen regional storage facilities and preposition MH response supplies including logistics											
Establish dedicated budget line in national plans for IHR	1	1	1	1	1	5000	5000	5000	5000	5000	25000
Identify sites and where needed construct, permanent regional storage facilities for preparedness and response including logistics. (Cost of constructing 15 ware houses)											0
Organize meeting to develop multi hazard response list of require logistical supplies and medications (30 PAx *1 day)	1		1			2200		2200			4400
Procure and preposition stockpile of supplies (medical, non-medical equipment, etc.) (Preferably 50 health kits with standard prices 10,000 people for 3 months)	1					700000					700000
Sub Total						1688798	3163275	680125	105100	3210825	8848122.5

14. Emergency Response Operations (EOC)

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Build capacity to activate emergency response operations at national and county levels											
Conduct workshop to adopt and adapt existing Emergency management training modules (Basic EM, FEMA): (30pax*3days)	1				0	11610					11610
Print adapted training modules (500 copies*50pages)	1	1	1	1	0	6250	6250	6250	6250		25000
Conduct refresher training for EOC core-team in basic emergency management: 60 staff (3 per County and 15 national: (60pax*5days* 4 years)	1	1	1	1	0	38600	38600	38600	38600		154400
Conduct orientation/refresher training on EOC standard operations procedures and plan use for county level and national staff: (45pax*5days*2 years)	1		1			9950		9950			19900
Conduct Incident managers training for senior management staff , 15 CHO 15 CSO 15 CHDD 15 National staff, 15 superintendent 15 Disaster mgt staff: (90pax*7days*1year)	1					80050					80050
Update and print emergency management staff roster (10 copies*100 pages)	1					250					250
Strengthen emergency operations framework at national and county level											
Establish roles of the EOC in the NPHIL Act: Done already	1					0					0
Hire consultant to review and revise policy with EOC mandates included (1 consultant*25days*1 year) Activity to be implemented in first year	1					4500					4500
Conduct workshop to develop/update policies (health and disaster management) to include role of EOCs: (45 pax*5days*3sessions)	1					65175					65175
Print policies (300 copies*30pages)	1					2250					2250
Strengthen procedures and plans for emergency operations and response											

Organize workshop to review and update the existing Public Health Emergency Operations Plan (PHEOP) and EOC Standard Operations Procedures (SOP): (20pax*5days*5years)	1	1	1	1	1	14600	14600	14600	14600	14600	73000
Print copies of EOP and SOP (1000 copies*50pages)	1					12500					12500
Provide incentives for EOC staff (45 staff*12months*4years)	1	1	1	1		81000	81000	81000	81000		324000
Procure and distribute equipment and supplies to enhance EOC operations: (CT Equipment, 25 computers, 15 smart television, and 15 printers)	1					46000					46000
Procure and distribute equipment and supplies to enhance EOC operations: (stationery)	1	1	1	1	1	12750	12750	12750	12750	12750	63750
Conduct supportive supervision to ensure implementation of EOC plans and procedures (10staff*15days*4quarters*4years)	1	1	1	1		60000	60000	60000	60000		240000
Conduct multi-sectoral EOC simulation exercises at national and county level											
Hire local consultant to develop EOC table top exercise and simulation program (1 person x 15 days)	1		1		1	2700		2700		2700	8100
Conduct workshop to develop EOC Table top exercise and simulation program: (25pax*2days*3years)	1		1		1	6200		6200		6200	18600
Hold EOC table top exercises (25pax*2days*4years)	1	1	1	1		6200	6200	6200	6200		24800
Conduct multi sectoral simulations (40pax*2days*4years)	1	1	1	1		10700	10700	10700	10700		42800
Develop and update case management guidelines for cholera, EVD, Meningitis, VHF, Monkey Pox											
Conduct workshop to review and update 2 IDSR priority disease (EVD and cholera) (35Pax*5 days)	1	1				9290	9290				18580
Conduct workshop to develop 3 IDSR priority diseases (VHF-Lassa Fever, Marburg, Meningitis, Monkey pox) case management guidelines: (35Pax*5days*3years)	1	1	1			18875	18875	18875			56625
Meet to validate infectious disease guidelines(30pax*2days for the 5 infectious diseases	1			1		6800			6800		13600
Print and disseminate 500 copies of 5 infectious disease guideline	1					1250					1250

Conduct orientation workshop on the 5 infectious disease guideline(40pax*2 days * 5 infectious disease)	1	1				10700	10700				21400
Sub Total						518200	268965	267825	236900	36250	1328140

15. Risk Communication

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Strengthen risk communication capacity											
Conduct meeting to develop survey tools (30Participants*2days)		1					7100				7100
Conduct assessment of existing capacity on national Risk Communication		1					30000				30000
Organize workshop to review and validate survey findings and identify RC needs (20 participants * 2 days)		1					6950				6950
Develop 5 yr RC strategy for resource mobilization (1 consultant for 3 weeks)	1	1	1	1	1	1800	1800	1800	1800	1800	9000
Validate the RC strategy for resource mobilization (50 persons * 2 days)		1					14500				14500
Print RC resource mobilization strategy (25 copies * 25 pages)		1					156.25				156.25
Identify RC training needs for human and animal health events/outbreak(50)*5days		1					30500				30500
Update national risk communication plan											
Organize a workshop to review current RC plan and update it (25 participants*10 days)	1					36500					36500
Secretariat to consolidate RC plan (15Pax*5day)		1					5525				5525
Organize one-day validation meeting for the RC (30 participants)	1					2200					2200
Conduct bi-annual orientation meetings for 500 health workers (500Pax*2days)	1		1		1	63700		63700	0	63700	191100
Conduct one simulation exercise annually to test the multi-sectoral plan as part of the overall EPR simulations (150 persons*3 days*5years)	1					192000					192000

Strengthen Inter-sectorial and interagency communication											
Develop inter-sectoral SOPs on Risk Communication with support of local consultant (3 weeks)	1				1	3780				3780	7560
Organize validation meeting for the RC inter-sectoral SOPs to be attended by 75 persons *3days	1					25275					25275
Print and disseminate 500 copies (30 pages) of the SOPs (30 participants per county * 15 counties)	1				1	3750				3750	7500
Hold weekly Health Promotion TWG meetings to implement, and monitor emergency risk communication plans and activities (30 per meeting *260weeks)	1		1		1	24000		24000		24000	72000
Hold monthly meetings with relevant partners to plan, implement, and monitor emergency risk communication plans and activities (30 Pper meeting*60 months)	1		1		1	50550		50550		50550	151650
Update the multi-sectoral plan with support of local consultant (2 weeks)	1					2520					2520
Conduct one simulation exercise involving 150 participants (*2 days) to test the multi-sectoral plan as part of the overall EPR simulations	1					48000					48000
Print 500 copies (30 pages) and disseminate the plan	1				1	3750				3750	7500
Hire one local consultant (2 weeks) to support development of the media communication policy and strategic plan		1			1		2520			2520	5040
Organize meeting to validate the strategic plans (50 participants * 3days)		1					9500				9500
Print 500 copies of communication strategic plan		1					6250				6250
Conduct bi-annual orientation for 1,600 (2 days * 1,600* 1 year) health workers in risk communication best practices for behaviour change.		1	1	1	1		202100	202100	202100	202100	808400
Organize 2-day training on risk communication best practices for behaviour change for 2,000 CHVs and 2,000 CHAs. (4,000 * 2 days* 1 year)		1	1	1	1		483700	483700	483700	483700	1934800
Develop media communication policy and strategic plan											

Hire one local consultant (2 weeks) to support development of the media communication policy and strategic plan		1			1		2520			2520	5040
Organize meeting to validate the strategic plans (50 participants * 3days)		1					9500				9500
Print 500 copies of communication strategic plan		1					6250				6250
Conduct bi-annual orientation for 1,600 (2 days * 1,600* 1 year) health workers in risk communication best practices for behaviour change.		1	1	1	1		202100	202100	202100	202100	808400
Organize 2-day training on risk communication best practices for behaviour change for 2,000 CHVs and 2,000 CHAs. (4,000 * 2 days* 1 year)		1	1	1	1		483700	483700	483700	483700	1934800
Strengthen capacity of the communication unit											
Procure 3 still cameras($150.00)		1					450				450
Procure 3 video cameras		1					750				750
Procure 20 pieces of Mac book laptop computers		1					20000				20000
Train 50 personnel on health reporting (50 personnel to be trained * 1 week)		1	1				61600	61600			123200
Conduct bi-weekly media briefing	1	1	1	1	1						0
Publish public health best practices in Liberia											
Hire one international consultant (for 2 weeks) to help publish information on country's best practices			1								0
Strengthen capacity for community engagement											
Organize a meeting to map existing partners and stakeholders for community engagement (30 participants*3days)		1					0				0
Provide sensitization meeting 200 non-technical people (elders, religious leaders) in community risk communication (40Pax*3days*5trainings)		1	1				32000	32000			64000
Train 4000 communication volunteers from the community (4000Pax*15days)	1		1		1	32000		32000		32000	96000
Organize training of RC focal points on community engagement (50 RC focal personsX5 days/year)*5 years.	1		1		1	20500		20500		20500	61500
Conduct bi-annual meetings with key county and district health promotion and community health	1	1	1	1	1	32500	32500	32500	32500	32500	162500

focal points to document community experiences at the subnational level.(50 pax *2 meetings per year*5years)											
Establish community outreach programs and regularly conduct IEC material testing with members of target audience.											
Develop or review, pre-test messages for 14 immediately reportable diseases or conditions and other emerging or re-emerging diseases. (25 Pax for dev/ review* 14 days and 12 Pax for pre-test* 7 days)	1				1	17500		0		17500	35000
Print and disseminate 15000 copies (5 pages each) of print materials for each priority diseases.	1		1		1	1875		1875		1875	5625
Translate messages into all 16 local vernaculars	1					16000					16000
Print translated messages (10,000 * 3 pages each)		1	1		1		7500	7500		7500	22500
Procure CD (100 pieces) and recorder (15 pieces) for the mass production and development of audio messages		1					1200				1200
Air messages on 15 local and 5 national radio station (weekly (30 minutes * 5 years)	1	1	1	1	1	36000	36000	36000	36000	36000	180000
Meeting to map epidemic prone communities(covered under community outreach)		1									0
Conduct outreach programs with community leaders and volunteers to each epidemic prone community at least once bi-annually in each county (1,125 peopleX45 daysX2 times a year x 5 years).	1	1	1	1	1						0
Establish a rumour tracking, reporting and management system											
Organize a meeting to develop guidelines on rumour collection and reporting (45Pax*3 days)	1	1	1	1	1	8625	8625	8625	8625	8625	43125
Organize a meeting to validate guidelines on rumour collection and reporting (45Pax*1day)		1					3175				3175
Radio health talk	1	1	1	1	1	7500	7500	7500	7500	7500	37500
TV briefing sessions on health	1	1	1	1	1	5000	5000	5000	5000	5000	25000
Sub Total						635325	1720971	1756750	1463025	1696970	7273041

16. Medical Countermeasures

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Develop a plan and guidelines for medical counter measures during public health emergencies											
Conduct stakeholder meeting to develop a strategy for developing guidelines and a plan for medical counter measures during public health emergency (30Pax*1day)		1	1		1		4300	4300		4300	12900
Conduct Workshop of stakeholders to develop guidelines and plan for medical countermeasures (50 Pax*5 days*3meetings		1	1		1		24500	24500		24500	73500
Hire 1 international technical assistance for 1 month to review and support development of guidelines and plan on medical countermeasures		1					14500				14500
Conduct a validation meeting to review and revise guidelines and plan (60 Pax*2days)		1					13100				13100
Print 800 copies * 50 pages of MCM guidelines and plan	1			1		10000			10000		20000
Organize orientation of 200 stakeholders on the endorsement and dissemination of guidelines and plan (40 Pax*1 day*5 meetings)			1					24750			24750
Conduct simulation exercise on the plan (80Pax*2days*4 times)			1					10400			10400
Develop MOUs with suppliers for procurement of Medical countermeasures during emergencies											
Meet to develop an inventory of supplies needed of medical countermeasures (45Pax*2days)		1					8600				8600
Hire 1 TA for local development of MOU for 5 days		1					900				900

Meeting with potential suppliers to explore opportunity for supply agreements (60Pax*2days*2 meetings)		1					15400				15400
Organize workshop with legal aides to draft MOUs with suppliers on medical countermeasures (60Pax*4days)		1					14800				14800
Develop MOUs with neighbouring countries for sharing medical countermeasures during public health emergencies											
Advocate with Ministry of foreign affairs, Attorney General's office and MRU on need for MOUs on MCMs with neighbouring countries(10 person X 1day meeting)		1					900				900
Develop and share Diplomatic communique on need for MOUs on MCMs		1					0				0
Meeting with officials from Guinea, Cote De Voire and Sierra Leone to develop MOUs for MCMs (45Pax*6 days*2 meetings)		1					33600				33600
Review of MOUs with help of legal office		1					1800				1800
Organize Regional meeting to validate MOU (60Pax*4 days) bringing sub-national members e.g. CHOs, County Pharmacists		1					26500				26500
Printing of 20 copies * 6 pages of MOUs for medical countermeasures		1					30				30
Sensitize stakeholders on the MOUs for sharing MCMs (40 Pax*2days*5 sessions)		1					53500				53500
Develop a national plan for sending and receiving health personnel during public health emergencies											
Organize stakeholders meeting to develop strategy for HR plan development (30Pax*1day)	1	1		1		4300	4300		4300		12900
Develop a national plan for sending and receiving health personnel during a PHE (30 Pax*3days)	1					9300					9300

Hire one international technical assistance (15 days) to support development of plan for sending and receiving personnel during emergencies	1					11250					11250
Validate the plan (60 Pax*2days)	1					14450					14450
Print 500 copies * 50 pages of the plan	1		1			6250		6250			12500
Orientate stakeholders on the plan (40Pax*1 day*5 meetings)	1					30000					30000
Conduct simulation exercise on the plan (80Pax*2days*2 times)		1		1			16850		16850		33700
Establish pool of technical personnel for supporting public health emergencies in-country and in other countries											
Conduct a meeting of stakeholders to develop roster pool of technical personnel (30Pax*2days)	1	1				4100	4100				8200
Develop training material for response to public health emergencies (30Pax*5 days)	1	1				9800	9800				19600
Train technical personnel who are in the pool of EPR (30Pax*4days*3 trainings)	1		1		1	11800		11800		11800	35400
Develop MOUs with neighbouring countries for sharing health personnel during public health emergencies											
Advocate with Ministry of foreign affairs, Attorney General's office and MRU on need for MOUs on personnel exchange during emergencies (Advocacy meeting) 10 persons X 1meeting)	1	1				900	900				1800
Organize meeting with officials from Guinea, Cote De Voire and Sierra Leone to develop MOUs for personnel sharing (45Pax*6 days*2 meetings)	1					16800					16800
Review MOUs with support of Legal office (no cost)	1					1800					1800
Organize Regional meeting to validate MOU (60Pax*4 days)	1	1				24550	24550				49100
Print 20 copies * 10 pages of MOUs for sharing of personnel	1	1				50	50				100

Sensitize stakeholders on the MOUs for sharing personnel (40 Pax*2days*5 sessions)	1	1				26500	26500				53000
Conduct simulation exercises for sharing personnel (80Pax*3 days*4)	1		1		1	23000		23000		23000	69000
Sub Total						204850	299480	105000	31150	63600	704080

17. Linking Public Health and Security Authorities

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Strengthening the military and other security agencies' in healthcare response capacities											
Organize meeting to develop and/or update EPR training manuals for security agencies (20pax*5days*3years)	1	1	1			43350	43350	43350			130050
Conduct TOT of 25 personnel from security agencies (25pax*5days*1)	1					15125					15125
Train security personnel in IHR and IDSR (1500pax*7days*4year)	1					3517000					3517000
Conduct after-Action reporting of experiences during national disasters once annually (30Pax*4days*5years)	1					78500					78500
Train and strengthen the capacity of at least 20 laboratory personnel on specific roles during emergency responses (training for 20 people x 2 x 1)	1					2900					2900
Monitor and provide supportive supervision at security health post on best practices in IPC and disease surveillance and reporting. Quarterly visits x 5 days per year in 5 regions)	1					11875					11875
Strengthen the Liberia National Fire Service response plan and standard operating procedures (SOPs)											
Conduct training in fire response activities(50px*2*1year)	1	1	1	1	1	10550	10550	10550	10550	10550	52750
Conduct technical working sessions to develop MOUs , SOPs, with clear roles and responsibilities that reflect emergency health response (25persons*5*1year)	1	1	1	1	1	8375	8375	8375	8375	8375	41875

Conduct onsite hands on trainings for relevant authorities operating at designated POEs (LIS, Port Health, LNP, Quarantine officer, DEA, Custom, ECOWAS officer etc, (50 persons x 2 days x 2 (two training over the 5 years period	1	1	1	1	1	13000	13000	13000	13000	13000	65000
Conduct Intelligence gathering and Information Sharing at cross border (Logistics for monitoring and intelligence gathering: 6 vehicles, 600 gallons of fuel monthly * 5 years)	1					363000					363000
Conduct technical working session for development and updating of plan and SOP (10px*3days yearly)	1	1	1	1	1	2500	2500	2500	2500	2500	12500
Validate the LNFS response plan and SOP(10pax*2 days)	1	1	1	1	1	1700	1700	1700	1700	1700	8500
Print and disseminate 100 copies of the plan and SOP	1	1	1	1	1	1875	1875	1875	1875	1875	9375
Strengthen regional and continental collaboration of security sector for Health Disaster response (APORA, ECOWAS, MRU)											
Hold cross border meetings for information sharing and joint planning annually (30Pax*3*5years)	1	1	1	1	1	19400	19400	19400	19400	19400	97000
Hold cross border county level bilateral security and health meetings monthly (20Pax*1*12* 5 years)	1	1	1	1	1	38760	38760	38760	38760	38760	193800
Strengthen collaboration between public health sector and security sector											
Workshops to develop MOU and SOPs with triggers for collaboration between PH sector and security sector (60Pax*4days*3years)	1	1	1	1	1	171500	171500	171500	171500	171500	857500
Monthly Joint security meetings to integrate efforts for strategic response (25Pax*1*12 * 5 years)	1	1	1	1	1	22500	22500	22500	22500	22500	112500

Quarterly joint meeting between security agencies and Public Health Sector (40Pax*1*4*5)	1	1	1	1	1	11400	11400	11400	11400	11400	57000
Nominate contact points for the joint collaboration with health (No cost)											0
Create a medium for communication and health related information sharing amongst Public Health and Security sectors (No cost)											0
Conduct annual joint simulation exercises for national disaster response in consultation with the National Disaster Agency, (80Pax*3day*5years)	1	1	1	1	1	37850	37850	37850	37850	37850	189250
Review and Update LNP Strategic Plan/ SOP to reflect Emergency Health Response											
Organize workshops to review and update existing MOU and SOPs to suit present reality (working session with 20 persons for 2 days)	1	1	1	1	1	2900	2900	2900	2900	2900	14500
Print and disseminate 200 copies * 50 pages of the strategic plan and SOPs	1		1			2500		2500			5000
Train security personnel on specific roles during Public Health Emergencies (25pax*3days in the first and third year of the plan).	1		1			23450		23450			46900
Sub Total						4400010	385660	411610	342310	342310	5881900

18. Chemical Emergencies

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Develop Regulations on Chemicals (Importation, Handling, Management, Storage, Utilization, Risks and Disposal)											
Conduct annual inventory of all chemicals in country (15 persons X 20 days) x 4years	1	1	1	1	1	44120	44120	44120	44120	44120	220600
Organize stakeholder meeting to review existing regulations (60 persons X 2 days)	1					13100					13100
Conduct annual stakeholder consultative meeting (60 persons X 1 day)	1	1	1	1	1	8350	8350	8350	8350	8350	41750
Conduct technical experts meetings with relevant institutions (20 people X 2 days) X 2times/year) x 4 years	1	1	1	1	0	5800	5800	5800	5800		23200
Organize workshop to validate regulations (60 persons X 2 days)	1				0	13100					13100
Conduct monthly newspaper and Radio adverts to sensitize public on environmental protection and management(2 radios x 15 counties x 12months x 4 years) and (1 newspaper x 12 times x 4 years)	1	1	1	1	0	186000	186000	186000	186000		744000
Build capacity for chemical events, intoxication and poisoning surveillance											
Organize workshop to develop guidelines and tools for chemical events surveillance (4 days x 30 people)	1				0	11800					11800
Organize meeting to validate guidelines and tools for chemical events surveillance(45 people x 2 days)	1				0	9950					9950
Sensitize stakeholders at county level on chemical events surveillance(35 people x 15 counties x 2 daysx 4years)	1	1	1	1	0	8750	8750	8750	8750		35000
Conduct annual meeting to map sites/facilities with high chemical risk (40 people)	1	1	1	1	0	6000	6000	6000	6000		24000

Conduct routine inspection of sites with chemical risk monthly(2people x 3 days x 15 counties)x 5 years	1	1	1	1	1	20000	20000	20000	20000	20000	100000
Provide vehicles, motorcycles and computers to the ESIA and Inspectorate Units (Department of compliance and Enforcement) at the EPA for routine monitoring and inspection at places of chemical risk. (5 double cabin pickups, 5 laptop computers and 15 motcycles)	1					335000					335000
Organize meeting to constitute coordination platform and develop TORs of chemical hazards committee(20 people x 2 days)	1					4250					4250
Conduct quarterly meetings of chemical hazards committee at national and county level (National: 25 people x 4 qtrs x 4 years, County level:20 people x 1 day x 15 counties)	1	1	1	1		66250	66250	66250	66250		265000
Codnuct orientation of technical staff involved in the inspection of sites of chemical risk at county and national levels (30 people x 14 days) x 4 years	1	1	1	1		36800	36800	36800	36800		147200
Upgrade EPA laboratory to conduct test at sites of chemical risk (Provision of testing tools, reageants, and equipment)											0
Develop and implement a response Plan for Chemical Incidents											
Conduct stakeholder consultative meeting (30 persons X 1 day)	1		1		1	4300		4300		4300	12900
Hold workshops to develop chemical events response plan (60 persons x 2 days)	1					13100					13100
Organize workshop to validate validate plan (60 persons x 2 days)	1					13100					13100
Print and disseminate 500 copies of the plan	1					3125					3125

Conduct simulation exercise for chemica events (1 exercise quarterly x 1 day)x 15 counties	1		1		1	4700		4700		4700	14100
Establish capacity for response to chemical events within OH strategy											
Identify and train CMT (Crisis Management Team members) at national and county level (National: 30 people x 5 days, County: 20 people x 5 days x 15 counties)	1		1		1	367500		367500		367500	1102500
Identify and train CMT (Crisis Management Team members) 2 International trainers required for ToT/National level training.	1		1		1	9500		9500		9500	28500
Develop technical guidelines and SoPs on response to chemical emergencies (2 international consultants x 14 days)	1					21200					21200
Develop technical guidelines and SoPs on response to chemical emergencie (2 national consultants)x 14 days	1					5040					5040
Validate Technical guidelines and SoPs (45 persons x 2 days)	1					9950					9950
Print and disseminate 1000 copies of the response to chemical immergencies technical guidelines and SoPs	1					17500					17500
Procure 500 set of PPEs (Protective gears) for chemical hazards	1					150000					150000
Procurement tool kits for testing (50 tool kits targeted).	1					80000					80000
Sub Total						1468285	382070	768070	382070	458470	3458965

19. Radiation Emergencies

Key Activities	Implementation period					Total cost per year					Overall cost
	2018	*2019*	*2020*	*2021*	*2022*	*2018*	*2019*	*2020*	*2021*	*2022*	
Strengthen capacity for detection, reporting and response to radio-nuclear events											
Organize meeting to develop TORs of and establish radio-nuclear working group (30*2 days*2 meetiings)	1					4100					4100
Organize workshops to develop guidelines and tools for radio-nuclear surveillance (45Pax*4 days*2 meetings)	1					11350					11350
Organize workshop to validate guidelines and tools for radio-nuclear surveillance (45Pax*3days)	1					8625					8625
Train 20 technical people on surveillance and response to radio-nuclear events (14 days)	1		1		1	19100		19100		19100	57300
Hold radio-nuclear working group meetings quarterly (20Pax*4*4)	1	1	1	1	1	38000	38000	38000	38000	38000	190000
Inspect high risk radio-nuclear sites quarterly (6Pax*7days*16 quarters)	1	1	1	1	1	23320	23320	23320	23320	23320	116600
Create Inventory of Nuclear and Radioactive Substances and high risk sites											
Organize annual meeting to map high risk radio-nuclear sites and material (40Pax*5 days)	1	1	1	1	1	12650	12650	12650	12650	12650	63250
Conduct field visits for assessment and mapping of high risk radio-nuclear sites and material (2Pax*6 days*4 visits)X 15 Counties x 5 years)	1	1	1	1	1	43400	43400	43400	43400	43400	217000
Organize meeting to prepare profile of country's radio-nuclear high risk material and sites (15Pax*5days*2 meetings)	1					11050					11050
Meeting to validate profile of country's radio-nuclear high risk material and sites (60Pax*2days)	1					7700					7700

Conduct awareness sessions through radio on radioactive risks (National radio:60 sessionsx5years; Local radios in counties 1 mothnly session x 91 districtsx 1 2 months)	1	1	1	1	1	90000	90000	90000	90000	90000	450000
Conduct awareness sessions through print media on radioactive risks (25 sessionsX 4years)	1	1	1	1		25000	25000	25000	25000		100000
Procure equipment for monitoring radio activity											
Procure 50 mobile radiation detection equipment	1					75000					75000
Procure 1 field radiation testing lab	1					75000					75000
Procure 200 sets radiation PPE	1					100000					100000
Procure 5 double cabin pickups	1					275000					275000
Procure 15 motor bikes	1					52500					52500
Procure 6 laptop computers	1					9000					9000
Develop and implement a Radiological and Nuclear hazards response plan											
Conduct stakeholder consultative meeting (30pax*1day)	1					2200					2200
Hold workshops to develop radio-nuclear events response plan (40 pax*2days*2 meetings)	1					10600					10600
Hold Validate workshop (60pax*2days)	1					15400					15400
Print and disseminate 500 copies of the plan	1										0
Create awareness for stakeholders on the plan (60 people x 2 days)	1					7700					7700
Conduct simulation exercise for radionuclear events (1 simulation quarterly *4 years)in 5 regions	1		1		1	5750		5750		5750	17250
Conduct national stakeholders sensitisation meeting on response to radiological emergencies and eventS under OH platform (80 people*2days*2times per year x 5 years)	1					20200					20200

Organize County stakeholders sensitisation meeting on response to radiological emergencies and eventS under OH platform (30 people*2days*2times per year x 5 years)	1	1	1	1	1	8200	8200	8200	8200	8200	41000
Train 100 persons on response to radio-nuclear events (14 days)	1	1	1	1	1	91400	91400	91400	91400	91400	457000
Procure 100 sets PPE for radio-nuclear hazards											0
Sub Total						1042245	331970	356820	331970	331820	2394825