

# 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.

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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.

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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<br>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 5<sup>th</sup>- 9<sup>th</sup> 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<sup>1</sup>). 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:

| <b>Core Component</b>                                | <b>Cost Drivers</b>  |
|--|--|
| <b>Prevent</b>                                       | <ul style="list-style-type: none"> <li>• Food Safety</li> <li>• Zoonotic diseases</li> <li>• IHR coordination, Communication and Advocacy</li> </ul>     |
| <b>Detect</b>  | <ul style="list-style-type: none"> <li>• Workforce development</li> <li>• Real time surveillance</li> <li>• National Laboratory system</li> </ul>        |
| <b>Respond</b>                                       | <ul style="list-style-type: none"> <li>• Preparedness</li> <li>• Linking public health and security authorities</li> <li>• Risk Communication</li> </ul> |
| <b>Other IHR-related hazards and Points of Entry</b> | <ul style="list-style-type: none"> <li>• Chemical events</li> <li>• Radiation emergencies</li> </ul>   |

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

<sup>1</sup> 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.<sup>2</sup> 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<sup>3</sup>**

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

<sup>2</sup> Source: World Bank, 2016 from <https://data.worldbank.org/country/liberia>

<sup>3</sup> Source: UNDP, 2014 from <http://www.un.org/Depts/Cartographic/map/profile/liberia.pdf>

a day) and approximately 48% below the extreme poverty<sup>4</sup> (earning below \$1.90 per day in addition to other deprivation).

| <b>Indicators</b>                                   | <b>Status</b>                                   |
|---|---|
| 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)                                |

<sup>4</sup> 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<sup>5</sup>). 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 26<sup>th</sup> 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 22<sup>nd</sup> 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.<sup>6</sup>

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.<sup>7</sup> 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.<sup>8</sup>

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<sup>5</sup> Central Bank of Liberia Annual Report, 2013

<sup>6</sup> <https://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html>

<sup>7</sup> Liberia IDSR Epidemiology Bulletin 2017 Epi Week 39 (September 25 – October 1, 2017)

<sup>8</sup> <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 Ministry 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)<sup>9</sup> 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%<sup>10</sup> 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

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<sup>9</sup> NPHIL is one the priorities of the Investment Plan for Building a resilient health system (2015-2021)

<sup>10</sup> 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,<sup>11</sup> Minamata Convention on Mercury,<sup>12</sup> 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.

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<sup>11</sup> The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal

<sup>12</sup> 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.<sup>13</sup>

| Capacities  | Indicators   | Score |
|---|--|-------|
| <b>National Legislation, Policy and Financing</b>   | 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     |
| <b>IHR Coordination, Communication and Advocacy</b> | P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR                        | 3     |
| <b>Antimicrobial Resistance</b>                     | P.3.1 Antimicrobial resistance (AMR) detection   | 1     |
|   | P.3.2 Surveillance of infections caused by AMR pathogens   | 1     |
|   | P.3.3 Health-care-associated infection (HCAI) prevention and control   | 2     |
|   | P.3.4 Antimicrobial stewardship activities   | 1     |
| <b>Zoonotic Diseases</b>                            | 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     |
| <b>Food Safety</b>                                  | P.5.1 Mechanisms for multi-sectoral collaboration are established to ensure rapid  | 1     |
| <b>Biosafety and Biosecurity</b>                    | 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     |
| <b>Immunization</b>                                 | P.7.1 Vaccine coverage (measles) as part of national programme   | 3     |
|   | P.7.2 National vaccine access and delivery   | 4     |
| <b>National Laboratory System</b>                   | 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     |

<sup>13</sup> 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 |
|---|--|-------|
| <b>Real Time Surveillance</b>                           | 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     |
| <b>Reporting</b>  | D.3.1 System for efficient reporting to WHO, FAO and OIE   | 2     |
|   | D.3.2 Reporting network and protocols in country   | 2     |
| <b>Workforce Development</b>                            | 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     |
| <b>Preparedness</b>                                     | 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     |
| <b>Emergency Response Operations</b>                    | 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     |
| <b>Linking Public Health and Security Authorities</b>   | R.3.1 Public health and security authorities (e.g. law enforcement, border control, customs) are linked during a suspect or confirmed biological event | 4     |
| <b>Medical Countermeasures and Personnel Deployment</b> | 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     |
| <b>Risk Communication</b>                               | 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     |
| <b>Points of Entry</b>                                  | POE.1 Routine capacities are established at points of entry  | 2     |
|   | POE.2 Effective public health response at points of entry  | 1     |
| <b>Chemical Events</b>                                  | 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 approach.
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 neglected;
- **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 23<sup>rd</sup> – 25<sup>th</sup> 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:

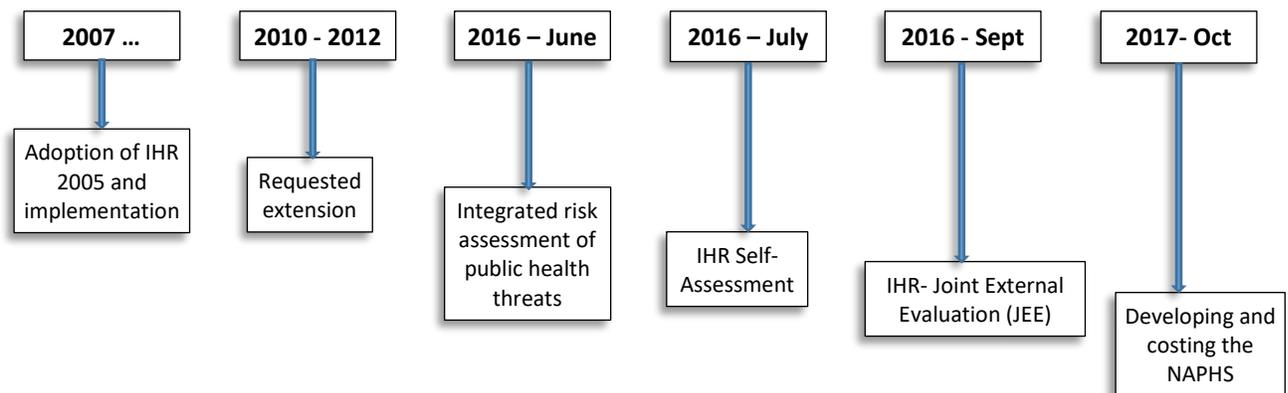
- Review of all 19 technical areas to identify critical gaps;
- Identification of realistic, relevant and achievable actions that are likely to be implemented in the short and medium term;
- During selection of the activities; priority was given to activities that will strengthen the health system and 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            |
|---|-----------|---------|---------|---------|---------|------------------|
| <b>PREVENT</b>                                  |           |         |         |         |         |                  |
| 1.1. National Legislation, Policy and Financing | 132,900   | 6,125   | 1,225   | 1,225   | 1,225   | <b>142,700</b>   |
| 1.2.IHR Coordination, Communication & Advocacy  | 1,200,598 | 824,198 | 937,948 | 789,548 | 757,798 | <b>4,510,088</b> |

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

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

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

**Table 2: Total cost of NAPHS by Category areas**

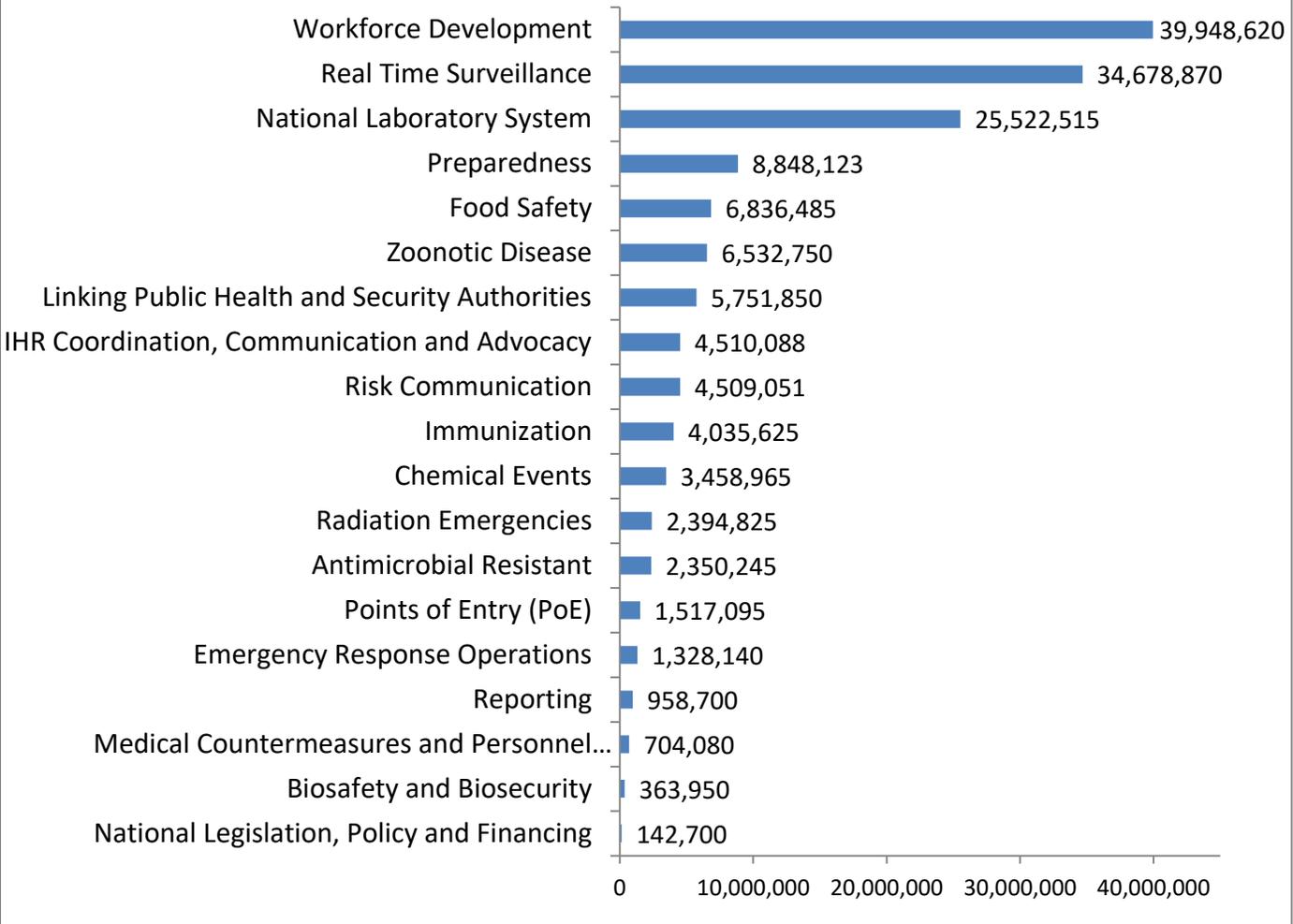
| <b>CATEGORY</b> | <b>2018</b>       | <b>2019</b>       | <b>2020</b>       | <b>2021</b>       | <b>2022</b>       | <b>Total</b>       |
|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|
| Prevent         | 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          |
| <b>Total</b>    | <b>26,967,183</b> | <b>42,889,936</b> | <b>28,745,915</b> | <b>26,670,065</b> | <b>29,109,580</b> | <b>154,382,676</b> |

**Table: 3 Cost Breakdown per technical area**

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

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

**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**

| <b>Core Component</b>                                | <b>Cost Drivers</b>  |
|--|--|
| <b>Prevent</b>                                       | <ul style="list-style-type: none"><li>• Food Safety</li><li>• Zoonotic diseases</li><li>• IHR coordination, Communication and Advocacy</li></ul>     |
| <b>Detect</b>  | <ul style="list-style-type: none"><li>• Workforce development</li><li>• Real-time surveillance</li><li>• National Laboratory system</li></ul>        |
| <b>Respond</b>                                       | <ul style="list-style-type: none"><li>• Preparedness</li><li>• Linking public health and security authorities</li><li>• Risk Communication</li></ul> |
| <b>Other IHR-related hazards and Points of entry</b> | <ul style="list-style-type: none"><li>• Chemical events</li><li>• Radiation emergencies</li></ul>  |

#### 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    | <ul style="list-style-type: none"> <li>• Low collaboration among key stakeholders' in NAPHS implementation.</li> </ul>   | <ul style="list-style-type: none"> <li>• Increased interest and commitment by the One Health partners</li> <li>• Increased partnership and collaboration in NAPHS implementation</li> </ul>  |
| Changes in technology               | <ul style="list-style-type: none"> <li>• Fast changing technology will affect implementation of NAPHS</li> </ul>   | <ul style="list-style-type: none"> <li>• No massive change in technology to affect NAPHS implementation</li> <li>• Partners will provide the necessary technical assistance as required</li> </ul>   |
| Finance                             | <ul style="list-style-type: none"> <li>• Unavailability of funds (domestic and external)</li> <li>• Delay in getting financial commitment and allocation</li> <li>• Change in government priorities over time</li> </ul> | <ul style="list-style-type: none"> <li>• Availability of adequate domestic and external funds</li> <li>• Donors are committed and allocate funds for implementation of the NAPHS</li> <li>• No change in government allocation of domestic funds for implementation of programs including NAPHS</li> </ul> |
| Human resource                      | <ul style="list-style-type: none"> <li>• High staff turn over</li> <li>• Low staff motivation</li> <li>• Limited number of qualified human resource</li> </ul>   | <ul style="list-style-type: none"> <li>• Human resource will be available, motivated, trained and deployed</li> </ul>  |
| Social and community mobilization   | <ul style="list-style-type: none"> <li>• Low level of public awareness and community engagement</li> <li>• Socio-cultural barriers</li> </ul>  | <ul style="list-style-type: none"> <li>• Sustained community involvement through the relevant strategies</li> </ul>  |
| Governance                          | <ul style="list-style-type: none"> <li>• Inadequate support from the Legislatures</li> <li>• No buy-in or support by the politicians</li> </ul>  | <ul style="list-style-type: none"> <li>• Government ownership and buy-in</li> <li>• Continued political support and advocacy</li> </ul>  |
| Natural (Man-made/natural disaster) | <ul style="list-style-type: none"> <li>• Unknown disaster or crisis affecting implementation of NAPHS</li> </ul>   | <ul style="list-style-type: none"> <li>• Adequate preparedness and effective response to known event or hazards</li> </ul>   |

## 4.5 Strategic Interventions

| Technical Package                           | Strategic Intervention   | Baseline 2017 | Mile stone  |
|---|--|---------------|---|
| National Policy Legislation, 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<br>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 <sup>14</sup> 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%  |

<sup>14</sup> 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             |   |
|                           | 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                 |
|                   | 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                                 |               | By end of 2022 laboratory quality system and referral network functional            |
|                   | 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                        |               |  |
| <b>Reporting</b>             | Establish and strengthen capacity for MOA reporting from all levels   |               |  |
|                              | 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                                       |               |  |
| <b>Workforce Development</b> | 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 policies to attract and retain the trained workforce in human, animal and environmental sectors |               |  |
| <b>Preparedness</b>                        | 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                          |               |  |
| <b>Emergency Response Operations (EOC)</b> | 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   |
|---|---|---------------|--|
| <b>Risk Communication</b>                             | 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  |               |  |
| <b>Medical Countermeasures</b>                        | 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<br><br>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                  |               |  |
| <b>Linking Public Health and Security Authorities</b> | 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                               |               |   |
| <b>Ports of Entry (PoE)</b>  | 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                             | Available     | 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  |               |   |
| <b>Chemical Emergencies</b>  | 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                              |               |   |
| <b>Radiation Emergencies</b> | 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 NPHIL serves 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.

| <b>Government Sector</b>   | <b>Roles and responsibilities</b>   |
|----------------------------|---|
| President's Office         | <ul style="list-style-type: none"><li>• Overall political, coordination, advocacy and partnership.</li><li>• Coordinates the One Health Inter-Ministerial Steering Committee</li><li>• Hosts the One Health Secretariat</li></ul> |
| Disaster Management Agency | <ul style="list-style-type: none"><li>• The Disaster Management Agency (DMA) has been recently constituted and replaces the former National Disaster Management Commission (NDMC).</li></ul>                                      |

| <b>Government Sector</b>                    | <b>Roles and responsibilities</b>  |
|---|--|
|   | <ul style="list-style-type: none"> <li>Leads the Disaster Management interventions including overall Disaster preparedness and response.</li> </ul>  |
| Ministry of Health                          | <ul style="list-style-type: none"> <li>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.</li> </ul> |
| National Public Health Institute of Liberia | <ul style="list-style-type: none"> <li>Co-lead the development and implementation of the NAPHS and mobilize resources for the NAPHS.</li> </ul>  |
| Ministry of Finance<br>Development Planning | <ul style="list-style-type: none"> <li>Allocate annual financial support for implementation of the NAPHS.</li> <li>Support aid coordination for implementation of the NAPHS</li> </ul>   |
| Ministry of Agriculture                     | <ul style="list-style-type: none"> <li>Strengthen the capacity for prevention, detection and response to zoonotic diseases.</li> </ul>   |
| Ministry of Defence                         | <ul style="list-style-type: none"> <li>Collaborates with the Ministries of Health, Agriculture and MDA to respond to public health threats and disasters</li> </ul>  |
| Ministry of Foreign Affairs                 | <ul style="list-style-type: none"> <li>Support regional and sub-regional framework for collaboration and medical counterparts.</li> <li>Coordinates with EPA on issues related to chemical management.</li> </ul>              |
| Ministry of Internal Affairs                | <ul style="list-style-type: none"> <li>Supports the work of the disaster management agency</li> </ul>  |
| Environmental Protection Agency             | <ul style="list-style-type: none"> <li>Coordinates and provides oversight on all issues related to environmental management.</li> </ul>  |

## 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-charge, 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                       |
| <b>Prevent</b> | National Legislation, policy and Financing   | National Public law updated and approved   | MOH/<br>NPHIL         | Draft available | Draft finalized & approved |                     |          | Public health law enforced |
|                |  | Availability of national budget line for NAHPS                                       | MOH/<br>NPHIL/<br>MFD | None            | 5%                         | 8%                  | 12%      | 15%                        |
|                | IHR Coordination, Communication and Advocacy | Multi-sectoral (One health) coordination mechanism established at national level     | MOH/<br>NPHIL/<br>MOA | 1               | 1                          | 1                   | 1        | 1                          |
|                |  | Number of Ministries/ Institutions <sup>15</sup> with IHR focal points               | MOH/<br>NPHIL         | 1               | 2                          | 3                   | 4        | 5                          |
|                |  | Number of IHR review meetings  | NPHIL/<br>MOH         | None            | None                       | Mid-term evaluation | None     | End-term evaluation        |
|                | Antimicrobial Resistance                     | AMR plan available   | MOH/<br>NPHIL         | None            | Plan available             | -                   | -        | Plan implemented           |
|                |  | Number of health facilities conducting HCAI and prevention control                   | MOH/<br>NPHIL         | TBD             | 25%                        | 50%                 | 75%      | 100%                       |
|                |  | Number of labs in human and animal health designated for AMR detection and reporting | MOH/<br>NPHIL/<br>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%                       |
|                |  | Availability of functional zoonotic disease surveillance in human and animal health  | MOA                   | 0               | In place                   | In place            | In place | (100%) in place            |

<sup>15</sup> 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 <sup>16</sup>       | 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               |
| 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/<br>NRL   | 75%       | 85%                   | 95%            | 100%           | 100%            |

<sup>16</sup> 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%    |
| 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       |
| <b>Build the capacity of the ministries and government agencies on laws and policies application</b>  |   |   |   |   |   |            |          |          |          |          |            |
| 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       |
| <b>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.)</b> |   |   |   |   |   |            |          |          |          |          |            |
| 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       |
| <b>Sub Total</b>  |   |   |   |   |   | 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 for 1 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     |
| <b>Sub Total</b>   |   |   |   |   |   | 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   |
| <b>Institutionalize IPC in Animal care and Healthcare facilities for HCAI prevention and control</b>   |  |   |   |   |   |  |        |        |        |        |  |         |
| 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   |
| <b>Strengthen Advocacy and stewardship for AMR</b>  |   |   |   |   |   |       |        |        |        |        |  |         |
| 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 data 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       |
| <b>Sub Total</b>  |   |   |   |   |   | 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 | 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  | 5900  | 23600  |

|  |  |  |  |  |  |         |         |         |         |         |  |         |
|--|--|--|--|--|--|---------|---------|---------|---------|---------|--|---------|
| Designate IHR focal person at MoA<br>(Should be the CVO) [0] |  |  |  |  |  |         |         |         |         |         |  | 0       |
| <b>Sub Total</b>   |  |  |  |  |  | 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   | 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  | 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 | 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   | 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   | 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 | 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  | 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  | 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 |
| <b>Finalize national Food Law</b>  |   |   |   |   |   |         |         |         |         |         |         |
| 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 |
| <b>Identify food safety focal person and establish relationship with the IHR NFP</b>   |   |   |   |   |   |         |         |         |         |         |         |
| Conduct food safety training for health workers and appoint a food safety focal person and national and regional levels ( 07 people)                               |   | 1 |   |   |   |         | 6750    |         |         |         | 6750    |
| <b>Sub Total</b>   |   |   |   |   |   | 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 |              |
| <b>Strengthen the multi-sectorial coordination mechanism under One health approach</b>   |                       |      |      |      |      |                     |      |      |      |      |              |
| <b>Develop and enact national legislation on biosafety and biosecurity</b>   |                       |      |      |      |      |                     |      |      |      |      |              |
| 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 peers each [3x3x15x4x4]   |   | 1 |   |   |   |  |       | 14250  |       |       |       | 14250  |
| Conduct annual site supervisions in all 15 counties to monitor implementation of biosafety and biosecurity guidelines - 3 teams of 3 peers each [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  |
| <b>Sub Total</b>  |   |   |   |   |   |  | 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)<br>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  |        |
| <b>Scale up urban immunization strategy</b>  |   |   |   |   |   |        |        |        |        |        |        |
| 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 |
| <b>Strengthen VPD surveillance and AEFI monitoring</b>   |   |   |   |   |   |        |        |        |        |        |        |
| 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 |
| <b>Strengthen equity focus analysis and programing for immunization service delivery</b>   |   |   |   |   |   |        |        |        |        |        |        |
| 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       |
| <b>Strengthen vaccine stock management and accountability systems</b>  |   |   |   |   |   |        |        |        |        |        |         |
| 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.  |   |   |   |   |   |        |        |        |        |        |         |
| <b>Sub Total</b>   |   |   |   |   |   | 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 | 33000<br>0 | 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 | 49680<br>0 | 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 | 13800<br>0 | 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 | 36000<br>0 | 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 |   |   |   |   | 46800<br>0 |        |        |        |        |        | 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  | 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 | 18000<br>0 | 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 |            | 103400<br>0 | 103400<br>0 | 103400<br>0 | 103400<br>0 | 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 reagents for public health disease diagnostics - measles, rubella, yellow fever, Ebola, Lassa fever, bacteriology, dengue, monkey pox; annually [1x1x5]            | 1 | 1 | 1 | 1 | 1 | 18855<br>0 | 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 | 14000<br>0 | 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 | 94800<br>0 | 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 reagents 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 | 94800<br>0 | 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 |   |   |   |   | 12000<br>0 |        |        |        |        | 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 $[(2 \times 27 \times 2) + (100 \times 27) \times 2]$ | 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 $[(3 \times 5 \times 2) + (100 \times 3)]$               | 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 $[(3 \times 5 \times 2) + (100 \times 3)]$                   | 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 $[(3 \times 15 \times 3 \times 2) + (200 \times 15 \times 2)] \times 4$ |  |  |  |  |             |             |             |             |             |  |          |
| <b>Sub Total</b>   |  |  |  |  | 485562<br>4 | 519487<br>4 | 513884<br>9 | 513884<br>9 | 514714<br>9 |  | 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 1 day stake holders consultative meeting on the AFRO-IDSR guideline 3rd Edition revision (50Pax*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 | 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 | 140,000 | 700,000   |
| <b>Building the capacity for real time electronic reporting.</b>   |   |   |   |   |   |         |         |         |         |         |         |           |
| 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    | 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( 1 consultant x 20 days) |   | 1 | 1 | 1 | 1 |         | 14500   | 14500   | 14500   | 14500   | 14500   | 58000     |
| <b>Roll out an electronic web-based reporting and data management system in 15 counties</b>  |   |   |   |   |   |         |         |         |         |         |         |           |
| 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 (1 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*1 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        |
| <b>Sub Total</b>   |  |   |  |  |  | 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 representatives 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      |
| <b>Sub Total</b>   |   |   |   |   |   | 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):<br>DSA for participants (15persons X 54 days) Feeding<br>for training (22 person X 54 days), Feeding for<br>graduation ceremony (40persons X 1day) |   | 1 |   |   |   |  | 11536800 |        |        |        |  | 11536800 |
| ) DSA for Field Mentorship (6 persons X 72 days)<br>Stationeries, Printing  |   | 1 | 1 | 1 | 1 |  | 167280   | 167280 | 167280 | 167280 |  | 669120   |
| Identify institution for housing the FETP and FETP<br>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<br>(University of Liberia) for two years* 1   |   | 1 |   |   |   |  | 1864700  |        |        |        |  | 1864700  |
| Facilitate training of 10 PhD students in One Health<br>(international) to serve as faculty for supporting MPH<br>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<br>(training package: tuition fee, accommodation,<br>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<br>programs, recruit hire and develop qualified<br>educators to deliver high calibre training programs   | 1 | 1 | 1 | 1 | 1 |  |          |        |        |        |  | 0        |
| Hire consultant to develop workforce strategy (1<br>international consultant for 1 month. Flight ticket, per<br>diem, lodging, consultation)  |   | 1 |   |   |   |  | 14500    |        |        |        |  | 14500    |
| Identify and collect existing HR strategies documents<br>that affect OH   |   | 1 |   |   |   |  |          |        |        |        |  | 0        |
| Develop One Health workforce strategy(DSA,<br>feeding, Transportation for 25 persons, hall rental,<br>stationeries, printing for 3 days)  |   | 1 |   |   |   |  | 8375     |        |        |        |  | 8375     |
| Workshop to validate strategy (DSA, feeding,<br>Transportation for 25 persons, hall rental,<br>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 |
| <b>Sub Total</b>   |   |   |   |   |   |  | 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*1 day)   | 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         |
| <b>Sub Total</b>  |   |   |   |   |   | 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  |              |
| <b>Develop the National Multi-hazard plan</b>   |                       |      |      |      |      |                     |       |       |       |       |              |
| 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            |
| Hire 1TAs (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         |
| <b>Test the multi-hazard plan</b>   |                       |      |      |      |      |                     |       |       |       |       |              |
| 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       |
| <b>Strengthen permanent isolation capacity in selected hospitals</b>  |                       |      |      |      |      |                     |       |       |       |       |              |
| 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   |
| <b>Strengthen capacity for multi-disciplinary RRTs at national &amp; sub-national levels</b>   |   |   |   |   |   |        |         |        |      |         |  |         |
| 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       |
| <b>Strengthened institutional and legal system for disaster risk reduction in Liberia</b>  |   |   |   |   |   |        |         |        |      |         |  |         |
| 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       |
| <b>Conduct all hazards risk mapping across the Country</b>   |   |   |   |   |   |        |         |        |      |         |  |         |
| 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    | 5000 | 25000     |
| Print and disseminate 1000 copies * 25 pages of country PH hazard profile   | 1 |   |   | 1 |   | 6250    |         |        |        | 6250    |      | 12500     |
| <b>Strengthen regional storage facilities and preposition MH response supplies including logistics</b>  |   |   |   |   |   |         |         |        |        |         |      |           |
| Establish dedicated budget line in national plans for IHR   | 1 | 1 | 1 | 1 | 1 | 5000    | 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    |
| <b>Sub Total</b>  |   |   |   |   |   | 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   |
| <b>Sub Total</b>  |   |   |  |  |  | 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  |              |
| <b>Strengthen risk communication capacity</b>   |                       |      |      |      |      |                     |        |       |      |       |              |
| 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        |
| <b>Update national risk communication plan</b>  |                       |      |      |      |      |                     |        |       |      |       |              |
| 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 |
| <b>Strengthen capacity of the communication unit</b>  |   |   |   |   |   |       |        |        |        |        |         |
| 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       |
| <b>Publish public health best practices in Liberia</b>  |   |   |   |   |   |       |        |        |        |        |         |
| Hire one international consultant (for 2 weeks) to help publish information on country's best practices                                     |   |   | 1 |   |   |       |        |        |        |        | 0       |
| <b>Strengthen capacity for community engagement</b>   |   |   |   |   |   |       |        |        |        |        |         |
| 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   |  |
| <b>Sub Total</b>  |   |   |   |   |   | 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  |
| <b>Sub Total</b>   |   |   |   |  |   | 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  |              |
| <b>Strengthening the military and other security agencies' in healthcare response capacities</b>   |                       |      |      |      |      |                     |       |       |       |       |              |
| 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        |
| <b>Strengthen the Liberia National Fire Service response plan and standard operating procedures (SOPs)</b>   |                       |      |      |      |      |                     |       |       |       |       |              |
| 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   |
| <b>Strengthen regional and continental collaboration of security sector for Health Disaster response (APORA, ECOWAS, MRU)</b>   |   |   |   |   |   |        |        |        |        |        |        |
| 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 |
| <b>Strengthen collaboration between public health sector and security sector</b>  |   |   |   |   |   |        |        |        |        |        |        |
| 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  |
| <b>Review and Update LNP Strategic Plan/ SOP to reflect Emergency Health Response</b>   |   |   |   |   |   |         |        |        |        |        |         |
| 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   |
| <b>Sub Total</b>  |   |   |   |   |   | 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, reagents, 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 chemical 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 emergency (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 emergencies 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   |
| <b>Sub Total</b>  |   |  |   |  |   | 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  |              |
| <b>Strengthen capacity for detection, reporting and response to radio-nuclear events</b>   |                       |      |      |      |      |                     |       |       |       |       |              |
| Organize meeting to develop TORs of and establish radio-nuclear working group (30*2 days*2 meetings)   | 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       |
| <b>Create Inventory of Nuclear and Radioactive Substances and high risk sites</b>  |                       |      |      |      |      |                     |       |       |       |       |              |
| 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       |
| <b>Sub Total</b>  |   |   |   |   |   | 1042245 | 331970 | 356820 | 331970 | 331820 | 2394825 |