



**NATIONAL PUBLIC HEALTH INSTITUTE OF LIBERIA  
2023-2028 STRATEGIC PLAN**

## Foreword:

The National Public Health Institute of Liberia (NPHIL) is pleased to present its revised Strategic Plan (2023-2028) which clearly defines mechanisms for implementation of public health interventions to protect and promote global and regional health security. The current plan is based on lessons learned from the implementation of NPHIL's previous strategy (2017-2022), the Joint External Evaluation (JEE) and WHO Benchmark reports, the National Action Plan for Health Security (NAPHS), the regional disease surveillance enhancement (REDISSE) and the "One Health" coordination platform. This strategy also considers key commitments outlined in the International Health Regulations (IHR).

This new strategic plan will serve as a road map for the achievement of the institute's vision and goals of becoming Africa's Center of Excellence for prevention and mitigation of diseases of public health threats. The plan identifies 5 key investment pillars for continuous improvement of public health in Liberia, namely: a competent and motivated work force for public health security and safety, an integrated disease surveillance and response system in place, a decentralized public health laboratory diagnostics system network, an environmental and occupational health with focus on healthcare wastes management and drinking water quality, and a strengthened institutional effectiveness that aligns with global, regional and national priorities and sharing of best practices.

Through this plan, NPHIL will seek to strengthen its collaboration with key stakeholders, including government agencies, non-governmental organizations, and international partners, to foster a culture of transparency and accountability.

The annexed five-year annual operation plan will play a vital role in providing guidance for NPHIL and its partners and will be jointly reviewed annually to assess progress and promotes evidence-based decision-making, resource optimization, and program effectiveness. The Institute remains dedicated to improving the health and well-being of all Liberians, and this plan serves as a roadmap to guide our efforts. We continue to count on the effective partnerships at all levels for the full implementation of this strategic plan.

It is my hope that this new strategy will be used as a reference and guide for internal and external stakeholders in designing and implementing program and project activities.

A handwritten signature in black ink, appearing to read "Jane MaCauley". The signature is fluid and cursive, with a large initial "J" and a long, sweeping tail that extends to the right.

Hon. Jane A. MaCauley

Director General

## Acknowledgement

NPHIL extends sincere appreciation and gratitude to its leadership and staff, led by the Director General, Hon. Jane A. MaCauley and the Senior Management Team for their vision, exceptional commitment, and leadership in guiding the process of the development of the 2023-2028 strategic plan.

The plan identifies 5 key investment pillars for continuous improvement of public health that further defines key priority interventions areas towards making NPHIL a center for excellence in Africa. With strong commitment for the leadership of the NPHIL and its partners, the implementation of this plan will integrate a robust annual review and monitoring approach that ensures evidence-based decision-making in the achievement of all interventions and resource allocation.

NPHIL is extremely grateful to its partners, the World Health Organization (WHO) and the U.S. Centers for Disease Control and Prevention (U.S. CDC) among others not named for their technical and financial support as well as their effective partnership that has enabled NPHIL to facilitate the processes leading the development of this plan. These collaborations have enhanced the quality and relevance of monitoring and evaluation activities and facilitated the exchange of knowledge and best practices.

Finally, NPHIL would like to express deep gratitude to the African Development Bank to whom we are extremely indebted and whose finances funded the development of this framework. The AfDB technical advice to the process has been well documented. We appreciate this collaboration and may this document serve as testament to our strong partnership.

With gratitude,

Dr. Julius Gilayeneh, MD, MSC  
Acting Deputy Director General For Technical Services

## Acronyms and abbreviations

AMR Anti-Microbial Resistance  
CBRN Chemical, biological, radiological, and nuclear  
CDC Centers for Disease Control and Prevention, United States Government  
CLTS Community Led Total Sanitation  
CSO County Surveillance Officer  
DEOH Environmental and Occupational Health  
DSO District Surveillance Officer  
DTRA Defense Threat Reduction Agency, United States Government  
eDEWS Electronic Disease Early Warning System  
EOC Emergency Operations Center  
EPA Environmental Protection Agency  
EPRP Emergency Preparedness and Response Plan  
EVD Ebola Virus Disease  
FETP Field Epidemiology Training Program  
GDP Gross Domestic Product GOL Government of Liberia  
HIS Health Information System  
HMIS Health Management Information System  
IDE Infectious Disease and Epidemiology  
IDSR Integrated Disease Surveillance and Response  
IHR International Health Regulations 2005  
LIBR Liberia Institute for Biomedical Research  
LMHRA Medical and Health Regulatory Authority  
LMIS Laboratory Management Information System  
LNREB Liberia National Research Ethics Board  
MOH Ministry of Health, Government of Liberia  
NAMRU-3 United States Naval Medical Research Unit No. 3  
NERC National Epidemic and Response Committee  
NGO non-governmental organization  
NIH National Institutes of Health, United States Government  
NPHIL National Public Health Institute of Liberia (also “Institute”)  
NPHRL National Public Health Reference Laboratory PHI Public Health Institute  
PHEIC Potential public health emergencies of international concern  
PPE Personal protective equipment  
QMS Quality Management System  
RTA Road traffic accidents  
PoE Point of entry.  
SARS Severe acute respiratory syndrome  
SDG Sustainable Development Goals  
SOP Standard operating procedure  
SWAP Sector-Wide Approach Program  
SWOT Strength-Weaknesses-Opportunities-Threats analysis  
USAID United States Agency for International Development  
USAMRIID United States Army Medical Research Institute of Infectious Diseases  
USD US Dollars  
WAHO West African Health Organization WHO World Health Organization

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## I. About NPHIL

Following the 2014 Ebola Virus Disease (EVD) outbreak, the "NPHIL ACT of 2016" created the National Public Health Institute (NPHIL) of Liberia. By establishing procedures to forecast, prevent, and respond to disease outbreaks and incidents of public health significance, the institution is set apart by the NPHIL Act as a corporate body with perpetual existence tasked with working with other agencies to enhance people's health.

NPHIL is governed by a Board of Directors appointed by the President of the Republic of Liberia with a tenure of three years. The board is responsible for oversight, resource mobilization, and advocacy. The Director General is the chief executive officer who runs the day-to-day affairs of the entity in consultation with the Board and the senior management team. There are two departments, namely, the Department of Technical Services and the Department of Administration. The Deputy Director General for Technical Services (DDGTS) is the lead scientist and the head of the TS Department. The Deputy Director General for Administration (DDGA) leads the Department of Administration. A team of highly skilled and experienced professionals has been recruited and placed to execute the mandates of NPHIL. Below is an overview of NPHIL's structures:

### **Office of the DG**

- Division of Global Health and Partnerships
- Division of Planning, Monitoring and Evaluation
- Division of Grants and Project Management (proposed)
- The Legal Advisor
- Senior Technical Advisor
- The Department of Technical Services
- Division of Training and Capacity Building
- Department of Infectious Diseases and Epidemiology
- Division of Laboratory and Public Health Diagnostics
- Division of Environmental and Occupational Health
- Division of Public Health and Medical Research and Development
- Division of Emergency Preparedness and Response (proposed)
- The Department of Administration
- Division of Finance
- Division of Human Resources Management

- Division of Procurement
- Division of Communication and Information Technology
- Logistics Unit and Supply Chain

## Mission, Vision, Strategic Goal

**Vision:** “A center of excellence for better public health outcomes”

**Mission:** “To prevent, detect, and respond to public health threats by informing and implementing evidence-based interventions and practices”

**Goal:** To be Africa's Center of Excellence for public health for prevention and mitigation of diseases of public health threats.

**Core Values:** The policy actions and program intervention services of the National Public Health Institute are influenced by the eight core values articulated below. The core values also form the foundation for the revision of the strategic plan and its subsequent implementation. These values represent the durable and supportive qualities that shape and guide all activities that NPHIL will undertake.

- **Ethics and integrity:** The NPHIL uphold generally accepted high standards of ethical codes of conduct. All those involved with the NPHIL conduct themselves in a professional manner that reflects favorably on the institute and the government of Liberia.
- **Transparency:** The NPHIL communicates honestly and openly about its activities, their results, their impacts on the health outcomes of Liberians, and the budget and finances of the Institute.
- **Accountability:** The NPHIL sets high expectations for its performance; all those involved take responsibility for what they do, and they demonstrate that they use the resources entrusted to the Institute to serve the people of Liberia. The NPHIL is accountable to the beneficiaries, the government of Liberia, and the donors.
- **Equity:** The NPHIL openly recognizes disparities within the organization and in health outcomes of the people of Liberia and is committed to reducing health inequalities and increasing equity for all.



- **Partnership:** The NPHIL recognizes that sustainable success involves collaboration – among the staff of the Institute, with other agencies of the Government of Liberia, with communities, and with external partners -- based on mutual trust and respect, a shared vision and goals, commitment, and active participation by all involved.
- **Quality:** The NPHIL delivers high-quality programs, services, knowledge, and expertise.
- **Productivity:** The NPHIL generates tangible results that contribute to the prevention and control of public health threats.
- **Innovation:** The NPHIL is a learning institution that takes pride in the ability and willingness of its staff to initiate innovative approaches that contribute to achieving the Institute’s mission.

## Background and Context

The EVD outbreak of 2014–2016 necessitated the establishment of a structure to work in collaboration with the Ministry of Health to concentrate on strengthening national and subnational public health capacities to institutionalize and implement infection prevention and control practices, improve surveillance and diagnostics, and build public health capacity to prevent the future outbreak of such diseases and other events of public health concern in Liberia.

Currently housed in the National Emergency Operations Center (NEOC) in Congo Town, NPHIL began its operations drawing on the expertise and experiences of the staff of the MOH’s epidemic preparedness, surveillance, and response system that responded to the EVD epidemic. Key departments and units, including the Liberia Medical Research Institution, responsible for biomedical research, and the Bureau of the Ministry of Health, involved with disease surveillance, were legally incorporated into NPHIL in addition to the National Emergency Operations Center (EOC) and Incident Management System (IMS), which were established to coordinate the EVD response.

With the support of multiple international and national partner institutions, including Liberia’s traditional allies and health partners, United States Government (USG) agencies, and the World Health Organization, a post-Ebola National Health Investment Plan<sup>1</sup> was developed in 2015 as

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<sup>1</sup> Investment Plan for Building a Resilient Health System 2015 to 2021

a road map for rebuilding a resilient health system in Liberia. Recognizing the risk of the re-emergence of Ebola or other disease outbreaks and based on the fluid nature of most epidemics, the national health investment plan outlined the following key priorities as the immediate mandate for the establishment of NPHIL:

- Establish a National Public Health Institute to conduct comprehensive disaster risk mapping and develop national strategic plans to mitigate and respond to disasters, and disease of epidemic potential.
- Lead emergency operations by activating and deactivating the Emergency Operations Center (EOC) and Incident Management System (IMS) at national, county, district and community levels
- Establish Integrated Disease Surveillance and Response (IDSR) and Early Warning and Alert Response Network (EWARN) structures at national, county, district and community levels.
- Set up comprehensive surveillance integrated data reporting and action frameworks.
- Build a National Reference Laboratory and 4 Regional Laboratories, upgrading 1 Laboratory at Phebe to Regional Laboratory standards
- Build a National Biobank

### [NPHIL 2017-2022 Strategic Plan - overview](#)

With collaboration from the development partners and the government of Liberia, the first 5-year (2017–2022) strategic plan was developed to serve as the roadmap for NPHIL to carry out its statutory mandate. The strategic plan outlined NPHIL's mission, vision, core functions, and program interventions. The plan adopted the NPHIL's goals and objectives enshrined in the Act, as stated below.

**Goal:** To improve the public health of the Liberian population in collaboration with relevant agencies and institutions of government.

### [Objectives](#)

1. Contribute to the development and sustainability of the public health workforce.
2. Develop, enhance, and expand the surveillance platform.
3. Establish a comprehensive, integrated, and sustainable public health diagnostic system.

4. Establish multi-sectoral epidemic preparedness and response capacities and capabilities.
5. Develop, enhance, and expand processes and structures to protect environmental and occupational health.
6. Expand, conduct, and coordinate public health and medical research to inform Liberian public health policies.
7. strengthening the relationship between NPHIL and national and international public health partners
8. Ensure sustainable financing and operations for the NPHIL.

The 5-year (2018–2022) strategic plan contained 8 programs, 49 strategic program interventions, and 246 priority activities aligned to the strategic objectives. A framework for monitoring and evaluating the plan's effectiveness called for conducting quarterly and annual performance reviews, which were intended to keep track of progress, spot challenges, and take the necessary steps to ensure success. Unfortunately, the plan did not undergo a mid-term review before it expired in June 2022, thereby necessitating the need to create a new one. This new 5-year (2023-2028) strategic plan and its accompanying 2-year operational plan, which mirrors the previous plan, were developed with the technical assistance of a national consultant.

The new strategic plan defines the revised vision and mission and describes how NPHIL will adapt to challenges and opportunities in a constantly changing environment in order to maintain a strategic fit between the desired program goals and their actual achievement. The plan provides the basis for fundamental decisions and actions that shape and guide what NPHIL is, who it serves, and what it does. Overall, it also provides guidance on: (a) the establishment of an operational plan; (b) the performance of staff in achieving desired goals and objectives; (c) the coordination of divisional works; (d) regular monitoring and a periodic evaluation and control system; and (e) the verification of long-term growth potential.

## II. The Process of Developing NPHIL 2023-2028 Strategic Plan

### *Strategic Thinking Workshop for Strategic Planning*

A technical program specialist from John Hopkins University facilitated a strategic thinking workshop from April 26–29, 2022, with top management of NPHIL to jumpstart the strategic planning process. The strategic thinking workshop focused on revising the vision and mission

of NPHIL and an examination of NPHIL's internal and external institutional environment to identify its strengths, weaknesses, opportunities, and threats.

### *Governance Structure of the Planning Process*

To set up the strategic process for success, the governance framework was established at both the policy and technical levels. At the policy level, the steering committee, presided over by the Director General, was established to consolidate resources and give the planning process policy direction. The NHPIL Board and other significant stakeholders were represented on the steering committee. The technical committee, composed of division managers, was also instituted to offer technical advice and input during the entire strategic planning process. To oversee the evaluation, analysis, and development of the pertinent theme components of the strategic plan, thematic working groups were also established. On October 25, 2022, the senior management team formally approved the strategic plan governance structure. Also, each division manager was assigned to thematic groups in accordance with the NPHIL's pillars for the period of the 2018–2022 strategic plan. The coordination responsibility for the development of the plan was assigned to the monitoring and evaluation unit.

### *Technical Approach*

A series of weekly technical coordination meetings was purposely held to track progress, agree on technical measures, and resolve all technical and administrative issues. As an outcome of these meetings, key documents for the desk review were identified, and specific self-reflective tools were designed, validated, and used by members of the thematic working groups to assess the performance of the 2018–2022 strategic plan.

The technical approach adopted involved three interdependent but interlinked steps with several specific activities aimed at generating data from primary and secondary sources to inform decisions on key priority programs and subsequently developing new strategic and operational plans. The first step focused on conducting a comprehensive situational analysis. The second step dwelt on the identification of strategic issues and priority program interventions, while the final step involved drafting, validating, and finalizing the strategic plan.

### *Situational Analysis*

Building on the findings from the strategic thinking workshop, a desk review of key strategic documents was conducted, and the findings were synthesized in a summary report. The report was reviewed by the thematic groups and the technical committee. Next, a series of thematic working group meetings were held to assess the achievements of the 2018–2022 strategic plan using the self-assessment tool. A separate pre-validation exercise was held with the thematic working groups and technical committee to review the results and findings of the performance assessment of the 2018–2022 strategic plan. Findings from the review of the thematic group meetings were consolidated and presented to the technical committee for feedback and validation.

### *Technical Validation Dialogue*

The core objective of this step was to develop the strategic plan, beginning with a new framework of strategic options identified through consensus building and decision-making based on the findings of the situation analysis. A one-day feedback meeting was held with the technical committee to review the consolidated findings from the performance assessment of the 2018–2022 strategic plan. This process resulted in the production of the strategic plan framework. The framework contained the strategic goals, objectives, and priority activities. During the internal review process, the feedback and additional inputs gathered were incorporated into the framework.

### *Development and Validation of the Plan*

Using a participatory approach, quality time was devoted by the strategic planning coordination team from the monitoring and evaluation unit to compile the information generated from the technical consultative meetings to produce the draft strategic plan, which contained the priority program investment areas, objectives, strategic interventions, and priority actions. The draft plan was circulated to senior management and other stakeholders for review. To ensure the quality and integrity of the plan and to promote ownership, a two-day national stakeholder workshop was held to validate the draft plan and develop the framework for the 2-year operational plan. Inputs from the validation process were incorporated to produce the second version of the strategic plan. The draft was circulated to all stakeholders, NPHIL management, and the board for final review, after which the final plan was endorsed for printing and dissemination.

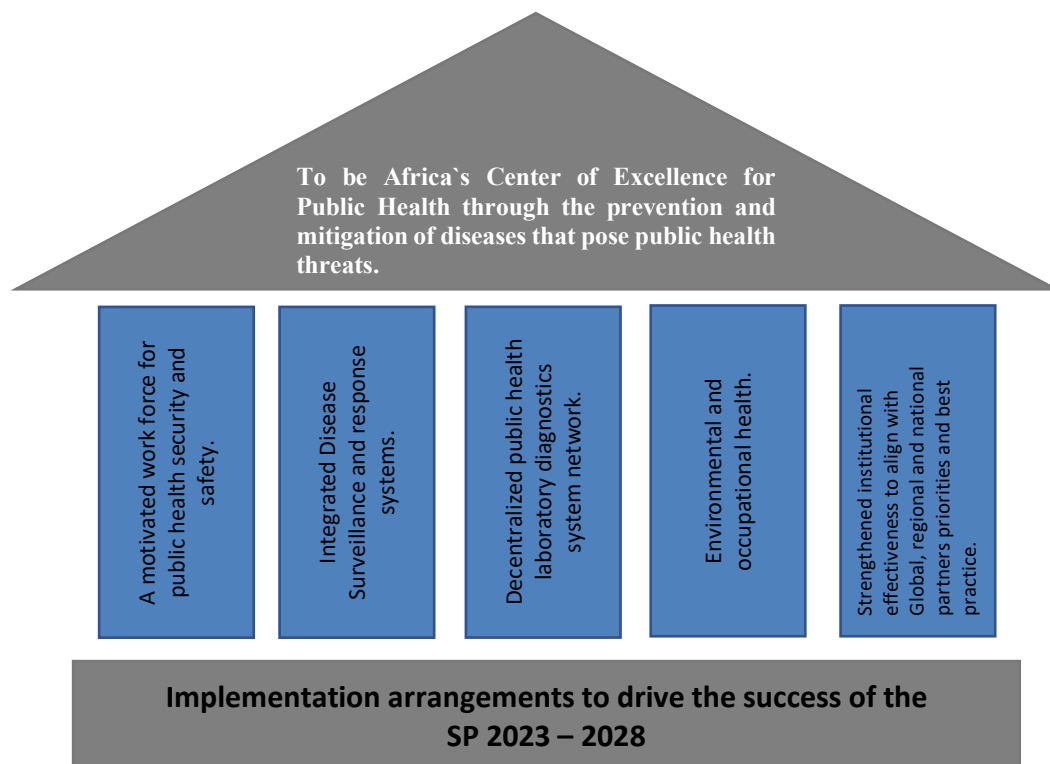
### III. Strategic Program Investment Framework

The strategic plan framework considers eight thematic program areas with demonstrated potential for improving public health performance when strengthened. These technical areas are consistent with the building blocks of public health.

- Public Health, Human Resources,
- Emergency preparedness, response,
- Public Health Laboratory Diagnostics,
- Disease Surveillance,
- Environmental and Occupational Health,
- Public Health and Biomedical Research,
- Public health infrastructure, and
- Public Health Financing

For strategic focus, alignment, and enhanced coordination, the eight thematic program areas are synthesized into five strategic investment pillars, forming the strategic framework for implementation over the next five years. Investment in these 5 pillars of critical priority program areas of need will enable NPHIL and its partners to deliver quality public services and contribute towards achieving NPHIL's goal of becoming Africa's Center of Excellence for Public Health for the prevention and mitigation of diseases and events that pose public health threats efficiently and effectively.

NPHIL's commitment over the next five years is to allocate and invest most of its resources for the implementation and achievement of its strategic plan in these five priority \five investment program areas. Nevertheless, significant investment will be made to strengthen other complementary technical areas, including governance and leadership, partnership and grants, risk communication, information communication and technology, and program monitoring and evaluation, among others, for stronger coordination, collaboration, and learning.



### Investment Pillar 1: A motivated workforce for public health security and safety

**Strategic Goal 1:** A fit for purpose motivated public health workforce for public health security and safety.

Over the last five years, NPHIL has made recognizable gains in providing opportunities and incentives (both short-term and specialized) to retain public health practitioners. Some key staff benefited from scholarships to enroll in graduate programs and specialized certificate programs in various fields of public health abroad. This includes ten students who are enrolled in the MPhil degree and certificate in applied epidemiology and disease control and the advanced field epidemiology and laboratory program. The national public health institute in collaborations with University of Liberia established a master's degree program in 2018 to train the public health workforce in functional disciplines, including epidemiology, community health, environmental health, laboratory science, and health system management in public health. Liberia's first 4-year degree-granting laboratory program, which started at Phebe two years ago, is expected to graduate more than 20 students in 2024. To introduce IDSR in the curriculum of preservice institutions, the NPHIL with support from WHO to train faculty and instructors in 26 institutions in 2022. NPHIL with funding from the USCDC also trained 418 personnel from various government agencies across the country in field epidemiology using

the One Health approach: 292 trained in the frontline, 95 in intermediate, ?? hospital medical directors in executive module and 28 in advanced field epidemiology.

Several workforce production interventions were not implemented. For example, the incorporation of veterinary science at the BSc and master's levels and updating the curriculum of the School of Environmental and Occupational Health to address the IHR core capacity requirement. Equally so, the plan to establish a resource center for research and education was not implemented, while the plan to fill in skill gaps in the Liberian workforce failed.

Though there doesn't exist any empirical evidence currently on the quality, quantity, and location of public health human resources available, Liberia has a huge gap in all fields, including epidemiology, laboratory sciences, health policy, health communications, information technology, and management. The public health human resources deficit can be attributed to limited investment in training and recruiting professionals. Generally, public sector budget support for public health has remained grossly inadequate and lacks the operating fiscal space for reallocation of available resources to train, recruit, and retain the needed qualified public health professionals. To partly fill in this gap, NPHIL has continued to rely on its development partners to provide technical support services. Additionally, the institutional capacity at NPHIL is currently weak for human resources planning, development, and management. The lack of an effective inter-sectorial public health human resources coordination mechanism and the government of Liberia's salary harmonization intended to promote equity in the civil service system are key challenges for human resources in public health.

To address the challenges, this strategic plan makes a compelling case for adequately investing resources to build capacity at NPHIL for workforce planning, production, development, and management. Ongoing collaborative partnerships efforts with academic institutions will be sustained and strengthened to expand degree-granting public health programs to produce a fit-for-purpose public health workforce for Liberia. The development of a comprehensive national road map for health workforce production and management is key.



**Strategic Objective 1:** Contribute to the development of a competent and sustainable public health workforce for security and safety.

**Intervention 1.1.1:** Develop and implement a national public health workforce policy and strategy

**Priority Actions:**

- Conduct a public health workforce need assessment for NPHIL
- Develop a public health workforce policy and strategy
- Roll-out and implement the public health workforce policy and strategy

**Intervention 1.1.2:** Develop the institutional capacity of NPHIL to implement the public health workforce policy and strategy

**Priority Actions:**

- Conduct an institutional capacity assessment (management systems, individuals, and infrastructure)
- Develop and implement an institutional capacity building plan
- Establish an effective coordination mechanism for in-service and short-term training in all NPHIL functional areas

**Investment Pillar 2: Integrated disease surveillance and response systems**

**Strategic Goal 2:** A strengthened, integrated disease surveillance and response system that ensures effectiveness in measuring the accurate burden of infectious disease and presents real-time data for decision-making and action.

**Sub-sector 2.1: Disease Surveillance**

Liberia and its partners have made significant investments to build a decentralized public health surveillance system to robustly detect, diagnose, and report on any human disease or public health threat. On the policy side, several guidelines and standard operating procedures were updated or developed, including the third edition of the IDSR Technical Guidelines, the CEBS Guide, SOPs for monkeypox, meningitis, measles, AFP, human rabies, and contingency plans for Lassa, Cholera, EVD, etc. Surveillance is now strengthened at sea, air, and ground crossing

points, as evidenced by the institution of SOPs, the development of a public health emergency contingency plan, the establishment of three regional isolation units across the country, the creation of triage at international border crossing points, and testing for COVID-19 at Liberia's international airport. To improve the quality of the data for reporting, an electronic data management system was adapted, and data from the 15 counties harmonized. A weekly national epidemiological bulletin is published to inform the public. Further, the training of seven county surveillance officers, ninety-three district surveillance officers, eight hundred and ninety HFSFPs in IDSR, the provision of reporting tools, and the participation of the CHPs in surveillance at the community level have improved early detection and verification of alerts. An important factor that propelled these achievements are technical and funding support from partners and strong coordination between NPHIL and the Ministry of Health.

The goal of strengthening the national surveillance system to predict, prevent, and detect events of public health security is far-fetched. Inadequate funding to conduct quarterly supportive supervision, conduct quarterly data harmonization across the 15 counties, and incentivize health care workers involved with surveillance activities, especially at the point of entry, are challenges to address. The strategy is therefore to advocate for the allocation of resources to strengthen an integrated and responsive public health surveillance system, with the requisite infrastructure capacities at all levels.

**Strategic Objective 2:** Strengthen and integrate the national surveillance system to predict, prevent, and detect events of public health security

**Intervention 2.1.2.1:** Strengthen early warning public health surveillance system at all levels

**Priority Actions:**

- Develop and implement an operational plan and SOPs for the surveillance system at all levels
- Develop and implement an interoperable and inter-connected electronic real time surveillance reporting system at both national and sub-national levels for both indicator- and event-based surveillance
- Build effective surveillance structures within communities for early detection of any potential public health hazards

- Collaborate with other agencies to strengthen regional and international surveillance networks.
- Expand and build capacity of POEs to effectively conduct cross border surveillance and data sharing

### *Sub-sector 2.2: Epidemic Preparedness and Response*

With a robust surge capacity now existing, the plan is to upgrade this to a multi-hazard national public health emergency preparedness and response teams around the country to respond to all epidemic-prone diseases (e.g., dengue fever). A multi-hazard contingency plan is available, the One Health emergency preparedness and response technical working group is functional, and the One Health Rapid Response Team (RRT) training package developed and validated. This package was used to train RRTs in five counties and eight health districts. Simulation exercises were conducted in all 15 counties and a national referral pathway for the 21 immediately reportable diseases, and events of PH concern was established. Failed efforts at training the public health workers to effectively plan, organize, and deliver emergency preparedness and response services within the 85 health districts and the need for qualified public professionals and logistics, including reporting tools and ambulances, are impediments.

The strategy moving forward is to forge strong partnerships across the Liberian public health system to have a multi-sectoral and multi-hazard emergency preparedness and response capacity marked by an efficient, interoperable, and interconnected electronic reporting system.

**Strategic objective 3:** Strengthen the national public health preparedness and response system to safely and accurately control any pathogens with epidemic-potential, including known, emerging, re-emerging, and novel threats.

**Intervention 2.2.3.1:** Develop national multisectoral and multi-hazard emergency preparedness and response capacity

#### **Priority Actions:**

- Develop and implement a national multisectoral multi-hazard emergency preparedness coordination mechanism
- Develop a national multi-sectoral preparedness and response regulatory framework.

- Implement and maintain a system to ensure the availability of essential emergency preparedness and response stocks at national, regional, and county levels.
- Strengthen EOC capacities, procedures, and plans at national and county levels.
- Develop capacity at national and county levels to respond to public health emergencies, including training rapid response teams and conducting live simulation drills.

### Investment Pillar 3: Public health laboratory diagnostics system

**Strategic Goal 3:** A decentralized, well-coordinated network of public health laboratory diagnostic systems to enhance One Health surveillance, public health research, and the diagnosis of epidemic-prone diseases.

#### *Sub-sector 3.1: Public Health Laboratory Diagnostic System using the One Health approach*

The 2018–2023 strategic plan emphasized the need for NPHIL to build a bio-surveillance and laboratory diagnostic system that supports public health diagnosis, safe and secure transport of specimens, and reliable conduct of core tests; and to detect and characterize pathogens with epidemic potential, both known and unknown threats, from all parts of the country and support clinical laboratories. Liberia’s laboratory testing capacity for COVID-19 and bacteriology has significantly increased. Aside from the NRL, COVID-19 tests are performed at two other hospital laboratories. Laboratory technicians are trained in biosafety, biosecurity, and risk assessment for COVID-19 on sample collection, packaging, and transportation. The COVID-19 antigen is available in every public hospital laboratory within the 15 counties. There are currently 5 county hospital laboratories performing bacteriology tests, while 9 hospitals (5 public and 4 private) have laboratories reporting AMR data through the one health laboratory TWG to GLASS and WHONet. To ensure quality performance, a standardized reporting template for archiving and inventory systems for AMR and a SOP for biosecurity laboratory guidance exist. Performing a laboratory confirmation test for Lassa fever at Phebe Hospital is a remarkable achievement.

The progress of the national laboratory system has continued to be hampered by a lack of electronic data management and storage systems, limited training on biosafety and biosecurity, limited biosafety equipment and materials, a lack of standards for laboratory infrastructure, and irregular feedback from the county health teams to health facilities and the NRL. Integration

of the regional and peripheral laboratories into the TWG did not happen due to the lack of internet connectivity in the counties, thereby stalling the plan to map and integrate these labs into the IDSR pathway for confirmation of reportable diseases. Irregular provision of laboratory commodities to support testing at the various labs is yet another crucial impediment.

Over the next 5 years, resources will be allocated to these crucial program interventions to speed up progress: laboratory inspection, licensing, and accreditation; genomic surveillance; biosafety and biosecurity; national reporting and archiving system for labs (eLIMS); increased test parameters to a minimum of five (5) per lab; referral diagnosis pathways for IDSR priority diseases per disease burden location; and provision of reagents, consumables, and equipment to support lab confirmation of a diagnosis. NPHIL's management will advocate for increased budgetary support for laboratory development, training laboratory technicians on unique specimen identifiers across human and animal specimens and improving the framework and monitoring system for tracking specimens and results, including end-of-life storage.

#### Strategic Objective 4: Strengthen Public Health Laboratories Diagnostic System to Enhance One-Health Surveillance and Response

##### Intervention 3.1.4.1: Expand Laboratory testing capacity and Infrastructure for priority testing

###### **Priority Actions:**

- Update and disseminate testing protocols to conduct testing of priorities, emerging, re-emerging diseases, heavy metal, chemical analysts, electrolytes, and Toxin
- Expand diagnostic capacity to cover priorities disease, emerging disease, re-emerging diseases, heavy metal, chemical analysts, electrolytes, and Toxic priorities emerging and re-emerging diseases including IDSR immediately reportable, epidemic prone and IHR core tests.
- Develop a decentralization plan for establishment of regional public health labs
- Build lab workforce capacity for testing priorities disease, emerging diseases, re-emerging diseases, heavy metal, chemical analysts, electrolytes, and Toxins.
- Develop an essential OH essential diagnosis list (EDL)

Intervention 3.1.4.2: Establish an effective One health national laboratory diagnostic network with strengthened specimen collection, referral and transport system

**Priority Actions:**

- Develop and strengthen sample transport system for One Health
- Develop guidelines and SOPs for networking and information sharing
- Institute a mechanism for networking and information sharing among lab stakeholder
- Establish a national one health Biobank at the NPHRL Lab
- Strengthen AMR diagnostic capacity at national and sub-national Laboratories
- Train laboratorian of public and private health facilities for testing antimicrobial pathogens and establish referral
- Institutionalize at NPHRL a One health standardized AMR data collection, reporting, archiving and inventory system

**Intervention 3.1.4.3:** Implement a robust national laboratory quality management system

**Priority Actions:**

- Strengthen the quality management systems units at national and sub-national laboratories
- Develop national policy guidelines and strategies for public health lab reporting, monitoring and evaluation
- Revise and implement the total quality management standards (TQMS) in accordance with the ISO15189.: 2022
- Establish a national quality assurance program

**Intervention 3.1.4.4:** Establish an interoperable laboratory information management system

**Priority Actions:**

- Develop a one health laboratory policy and SOP on data quality management
- Strengthen existing inter-operable electronic platform for one health laboratory information management system

**Intervention 3.1.4.5:** Establish an efficient One Health Biosafety and Biosecurity system

**Priority Actions:**

- Develop and implement a biosafety and biosecurity system for all One Health sectors
- Develop a One Health laboratory workforce capacity on biosafety and biosecurity

- Review the national biosafety and biosecurity guideline and develop the BSS framework, strategy, and policy

### *Sub-sector 3.2: Public Health and Medical Research*

Notable progress has been reported so far in the following areas: development and publication of a research agenda on NPHIL's website; establishment of a registry for all NPHIL research partners, which includes the nature of projects, duration of implementation, collaborating partner, and funding source; training of three researchers; regular meetings with research partners; development of research protocols; establishment, completion, and training leading to the activation of the board with the Office of Human Research Protections (OHRP) of the US Department of Health and Human Services; development and conduct of SOPs for all research projects; presentation at conferences; and publication of public health research on diarrhea, diabetes, measles, AMR, and food contamination by bacteria

Strong partner support for training and funding, coordination, and administrative support were the main enabling factors for these achievements. Collaboration with the existing national research ethic board and support from NIH colleagues at HHS US contributed as well. The establishment of the annual national scientific conference generated researcher interest among university students, lecturers, and public health practitioners. Currently, there are studies being done on Lassa, EVD, and measles.

Despite the progress, Liberia's capacity to provide leadership in the development of a research agenda to address questions regarding prevention and control of epidemic-prone diseases and the long-term health consequences of these epidemics prioritized over the last five years was somewhat accomplished, but numerous challenges remain, including limited research professionals and inadequate budgetary allocations to the Biomedical Research Institute for research. Liberia's research agenda is predominantly funded and driven by development partners, which does not promote ownership, control of findings, or the enhancement of the infrastructure development of the Biomedical Research Institute as proposed in the last five-year strategy plan. Bioinformatics is a critical component of the genomic sequencing workflow, which requires adequate, long-term training at both the doctoral and graduate levels. In-depth training to achieve research proficiency in scientific research methods, protocol development, and manuscript writing is prioritized. Investment in building capacity for the implementation

protocols development and the allocation of resources to regularly train members of the Internal Review Board to perform research mandates are key priorities.

**Strategic Objective 5:** Strengthen public health and biomedical research to generate evidence that informs health policies and actions.

**Intervention 3.2.5.1:** Strengthen the national public health research agenda based on current public health realities.

**Priority Actions:**

- Strengthen and expand NPHIL research capacity in priority areas as indicated in the research agenda
- Develop and implement plans for capacity building of researchers and scientists
- Regularly revise and disseminate the research agenda of the National Public Health Institute of Liberia (NPHIL)

**Intervention 3.2.5.2:** Strengthen policies to guide the conduct of public health and medical research

**Priority Actions:**

- Enhance the existing policies that govern research practices, namely those pertaining to authorship, scientific integrity, and the sharing and utilization
- Implement internal processes for protocol development and prioritization

**Intervention 3.2.5.3:** Coordinate and streamline research activities taking place within NPHIL

**Priority Actions:**

- Work with other technical divisions to analyze existing data for scientific publications and presentations
- Conduct scientific writing trainings/workshops for technical divisions within NPHIL

**Intervention 3.2.5.4:** Implement interdisciplinary collaborative research including in the context of One Health

**Priority Actions:**

- Develop and implement internally led research projects on diseases and conditions as highlighted in the NPHIL research agenda



- Establish international and local research collaborations for the conduct of research in priority areas as indicated in the NPHIL research agenda
- Implement research in the context of One Health and emergency research

## Investment Pillar 4: Environmental and occupational health

**Strategic Goal 4:** Strengthened collaborations with relevant stakeholders to ensure compliance with environmental and occupational health guidelines and protocols.

The environmental and occupational health program of NPHIL focuses on increasing access to safe drinking water, adherence of the public to safe hygiene and sanitation practices, and enhanced food safety and promoting occupational health.

### *Sub-sector 4.1: Access to Safe Drinking Water*

Liberia made significant gains in prioritizing water and sanitation towards achieving the global sustainable development goals, as demonstrated by the enactment of the laws establishing the Water Commission in 2017 to coordinate and ensure public access to clean water and the creation of NPHIL in 2017 to oversee public health emergency preparedness and response associated with the environment and disease outbreaks. However, very little progress has been made to improve public access to safe drinking water, primarily due to a lack of capacity for water testing.

Building water quality testing capability at the county level mainly involved the distribution of water testing kits in all 15 counties and the training of 30 water quality technicians across the country. The conduct of routine water quality monitoring for public, private, and commercial facilities was restricted to Monrovia, the capital city of Liberia. Support for the water quality surveillance laboratory is grossly insufficient, rendering the laboratory dormant and incapable of performing its statutory mandate.

Other contributing challenges and risks to improving public access to safe drinking water also include burial practices. The exhumation and cremation components of the environmental health practices are still not being considered due to culturally acceptable burial practices. There has been a protracted delay in the development of national guidelines on cremation and exhumation. Generating community support and interest for exhumation and cremation ranks

high among the challenging factors confronting Liberia. Additionally, this field of occupational health is underdeveloped due to weak human resources capacity and the lack of specialized programs within universities to train occupational health professionals.

For the next 5 years, it will be necessary for high-level policy advocacy amongst key stakeholders to generate support for increasing capacity at the water quality surveillance laboratory, strengthen the coordination mechanism to sustain the gains of the WASH sector, and establish a technical working group for OHS. The strategic plan will also concentrate on broadening the policy environment through the existence and enforcement of sound HCWM guidelines, which should be reviewed after three years, and within two years, fully incorporate the county environmental health technicians into NPHIL.

#### **Strategic Objective 6: Strengthen capacity and mechanism to improve environmental health**

##### **Intervention 4.1.6.1: Ensure access to safe drinking water**

###### **Priority Actions:**

- Institute and implement a national system to ensure public access to safe drinking water
- Build the human resources and logistical capacities of water quality laboratories at national and county levels
- Create the respond capacities of counties to robustly respond to potential outbreaks
- Build community structures and capacity to improve water quality for house and community consumption
- Establish an effective sectoral coordination mechanism to promote environmental health

#### **Sub-sector 4.2: Hygiene and Sanitation**

Liberia continues to build on the gains made to improve hygiene and sanitation practices. Sustained investment in water and sanitation across the county has reduced the outbreaks of cholera and other water-borne diseases across the country. The national guidelines on occupational health and sanitation, the water quality guidelines, and the guidelines on cremation and exhumation to ensure compliance. To translate these policy documents into action, the national 5-year hygiene for health campaign strategy was developed, accompanied by the Participatory Hygiene and Sanitation Transformation (PHAST) Tool Kits and the Self-esteem Associated Strength and Resourceful Action Planning (SARA). The anti-open defecation initiative triggered 3576 communities in all 15 counties, 38700 latrines built in rural

communities within the 92 health districts, 274 community-led total sanitation facilitators, and 5000 volunteers trained. To guarantee local government support for the program, all 15 county superintendents, including the minister and deputies, were also trained and signed a joint declaration to participate in the CHATWASH movement TOT and work with the district leaders to obtain ODF status. At health facilities, 35 incinerators, 10 placenta pits, 28 latrines, 92 latrines rehabilitated, and 30 waste zones completely fenced were installed. In addition, 265 health care workers were trained on the application of the guidelines.

**Intervention 4.2.6.1:** Increase community knowledge to adapt acceptable hygiene and sanitation practices

**Priority Actions:**

- Scale up the implementation of the Community Led Total Sanitation (CLTS) program nationwide
- Support and collaborate with county health teams to provide hygiene promotion services in communities

*Sub-sector 4.3: Food Safety*

Liberia is still struggling to create a national surveillance system for the detection and monitoring of foodborne diseases and food contamination. And the plan to establish a multisectoral collaboration and coordination mechanism for the monitoring and response to food safety emergencies and outbreaks of foodborne diseases remains a daunting challenge.

Assessment of the food safety plan indicates that within the last five years, 91%, or 20 of the 22 strategic actions, have not started. Nevertheless, the country accomplished a major policy goal with the drafting of the national food law and the establishment of the national standard laboratory to test and ensure food quality. In 2019, the national food safety assessment was conducted, a foodborne disease guideline was developed, a SOP for CODEX was developed, and a 20-member CODEX Technical Working Group was set up. In addition, the guidelines for unsafe food disposal are available. A rigorous food safety inspection program was instituted in 2018, leading to the seizure and subsequent disposal of expired imported food, including 1060 kg of unwholesome poultry products from France, 3000 barrels of pig feet, and 20 cartons of canned corn in 2021.

There is an acute shortage of trained food safety professionals, including licensed food inspectors, food safety policy and planning experts, and technicians in-country. Food safety programming is also suffering from a lack of funding to improve the laboratory facility, train staff, provide logistics for inspection, and establish a database for food quality analysis. At its current state, NPHIL's food safety capacity is limited. Food safety analysis laboratories are not available at both the national and county levels, and a database for foodborne disease surveillance is also not available. The plan to develop a curriculum for colleges and universities to provide specialized training for environmental health staff in food safety has yet to be accomplished.

The overall riding strategy for building Liberia's food safety capacity for the next 5 years is twofold: (a) create a national surveillance system for the detection and monitoring of foodborne diseases and food contamination; and (b) establish a multisectoral collaboration and coordination mechanism for the monitoring and response to food safety emergencies and outbreaks of foodborne diseases.

**Intervention 4.3.6.1:** Strengthen national surveillance systems for foodborne diseases and food contamination

**Priority Actions:**

- Develop and implement a national strategy and SOPs for food safety
- Educate the public on food safety to prevent contamination and outbreak
- Expand the capacity of the food safety unit
- Establish comprehensive food-borne disease surveillance system with and food safety analysis capacity in the 15 counties
- Established an effective inter-sectoral collaboration mechanism on food safety at policy and technical levels

*Sub-sector 4.4: Healthcare Waste Management and CBRN wastes*

Weak capacity for the safe handling and disposal of chemicals is a potential threat to public health and economic growth. The responsibility for safe handling and disposal of chemical waste is shared among several government agencies, including the Ministry of NPHIL, EPA, and Ministry of Foreign Affairs. The degree of coordination amongst these institutions is minimal. Evidently, Liberia has not done much to build national capacity to handle chemical waste in the country. The biggest accomplishment so far is the assessment of chemical and

vector control handling, which was partially conducted in Montserrado. The chemical law is yet to be enacted, and regulations and policies are not available.

#### **Intervention 4.4.6.1:** Improve the health care waste management at all levels

##### **Priority Actions:**

- Support county health teams to establish systems and structures to manage healthcare waste
- Develop national plan for health care waste management
- Develop infrastructure and logistical capacities of all health facilities to properly handle health care waste
- Modernize the Disco Hill centralized waste management treatment plant and burial site
- Advocate for the establishment of at least one centralized waste management treatment plant and burial site in all counties
- Strengthen the capacity of CHTs to conduct monitoring of in health facilities

**Intervention 4.4.6.2:** Strengthen structures for the safe handling and disposal of chemicals for the protection of human and environmental health

##### **Priority Actions:**

- Collaborate with relevant stakeholders to develop national capacity to handle chemical, biological, radiological and nuclear substances including waste in Liberia

#### **Intervention 4.4.6.3:** Strengthen vector and vermin control program and services

Need brief introduction on vector and vermin

##### **Priority Actions:**

- Develop capacity at national and county levels to control vector and vermin of public health threats
- Develop and implement vector and vermin control plan for communities and health facilities
- Develop and implement vector and vermin control monitoring system

#### **Sub-sector 4.5: Occupational Health and Safety**

The impact of unsafe labor practices at the workplace around the world has resulted in the deaths of industrial workers, especially in developing countries where the labor management systems, health care delivery systems, and law enforcement are weak. After intense global

advocacy actions by right-based organizations to ensure workers protection against work-related sickness, disease, injuries, and death, the International Labor Organization (ILO) produced the International Guidelines on Occupational Safety and Health Management System, first published in 2001, as an international framework for countries and organizations to institute and implement policies and guidelines on occupational safety and health management.

For decades, investment to promote occupational health and safety practices, especially within Liberia's health care delivery system, has been minimal. The impact of the Ebola virus disease and COVID-19 on the health workers in Liberia can be attributed to the weak policy environment and limited logistics and management systems to protect workers against work-related illnesses, diseases, and injuries. The EVD experience demonstrated the importance of occupational health and safety and created the demand to institute infection prevention and control (IPC) measures, including instituting national IPC guidelines, training health workers on IPC measures, and providing personal protection clothing to prevent contamination and reduce risk and hazards within health facilities.

The Occupational Health and Safety legal framework and management system at work places across the labor sector is weak. Liberia's Labor Law, revised Health Law, and other national policy documents, including the 2022–2031 health policy and plan, are all silent on occupational health and safety. The 2010 Decent Work Act set the minimum wage for workers but failed to address occupational health and safety issues. The occupational health and safety unit at NPHIL is underfunded and lacks the logistical and trained human resources to carry out its institutional mandate. Overall, Liberia needs to invest in occupational health and safety.

Moving forward, the strategic focus of NPHIL is to upgrade the current capacity of its occupational health and safety unit, advocate and collaborate with other government agencies to develop and institute the national policy guidelines for occupational safety and health management systems, and advocate for organizations to develop and enforce policies on occupational safety and health management systems.

[Intervention 4.5.6.4: Improve Occupational Health and Safety at workplaces](#)

**Priority Actions:**

- Establish an intersectoral coordination mechanism on OH&S
- Implement occupational health and safety guidelines
- Develop capacity at national and county levels to inspect and monitor institutions to comply with the OHS guidelines of Liberia

**Intervention 4.5.6.5:** Increase capacity to deliver occupational health services at all levels

**Priority Actions:**

- Create the logistic and managerial capacities of the County Health Teams to effectively implement and monitor programs
- Create awareness on the importance of occupational health services through conferences, celebration of international holidays, etc.
- Revise the National Environmental and Occupational Health Policy

**Investment Pillar 5: NPHIL’s institutional effectiveness**

**Strategic Goal 5:** A robust NPHIL with effective institutional capacities that are aligned with global, regional, and national best practices for stronger partnerships, resource mobilization and accountability.

Strengthening the institutional effectiveness of NPHIL will focus on the continuous improvement of core functions to facilitate and fully accomplish the mission, vision, and objectives of NPHIL and, by extension, the strategic plan of 2023–2028. The core functions of institutional effectiveness adopted under this pillar include the following key administrative, operational, and strategic functions of units and subunits discussed below: facilitate collaborative planning; provide data needed to effectively assess and review effectiveness; and continually improve quality and relevance.

*Sub-sector 5.1: Global Health and Partnerships*

**Strategic Objective 7:** Create strong partnership network to mobilize resources for public health

**Intervention 5.1.7.1:** Establish the national public health coordination mechanism for resource mobilization.

**Priority Actions:**

- Develop and implement a strategic framework and policy guidelines for partnerships
- Establish the national public partnership coordination committee
- Build the capacity of the global health division for partnership coordination
- Advocate for government to increase budgetary allocation to NPHIL
- Establish a platform to solicit local funding from development partners

*Sub-sector 5.2: Grants*

**Strategic Objective 8:** To increase Public Health Financing through grants

**Intervention 5.2.8.1:** Solicit and Manage Public and Private Grants and Funding Opportunities for NPHIL

**Priority Actions:**

- Update policy guidelines
- Develop grant coordination and project management mechanism
- Develop technical capacity to develop and manage grants and projects

*Sub-sector 5.3: Leadership and Governance*

**Strategic Objective 9:** Strengthen public health governance and management support systems to deliver quality services

**Intervention 5.3.9.1:** Reform NPHIL's governance structure to address current functional realities.

**Priority Actions:**

- Develop and implement governance reform plan

*Sub-Sector 5.4: Sustainable Financing*

**Strategic Objective 10:** Ensure sustainable financing and operations of the NPHIL

**Intervention 5.4.10.1:** Strengthen public health financial management system

**Priority actions:**

- Develop financial management policy and SOPs



- Implement the 2009 public financial management law and regulation
- Implement web base financial management system

*Sub-sector 5.5: Procurement management systems*

**Strategic Objective 11:** Strengthen and maintain an effective and efficient procurement system

**Intervention 5.5.11.1:** Institute an efficient electronic procurement, inventory and logistics management system to track the procurement, warehousing and supply of goods

**Priority actions**

- Develop an electronic procurement management system
- Operationalize the procurement management system
- Update procurement policy instruments/documents
- Train end-users on procurement processes and SOPs
- Implement a sustainable supply chain management system coordinated with the MOH and relevant partners
- Create and implement Asset Management System supported by institutional policies for logistics and supply chain
- Build the technical capacity of ICT staff to operate and maintain the data management and storage system

*Sub-sector 5.6: Public Health Infrastructure*

**Strategic Objective 12:** Improve physical and technical Infrastructure of NPHIL

**Intervention 5.6.12.1:** Increasing the number and quality of public health infrastructure

**Priority Actions**

- Create and implement NPHIL infrastructure development plan
- Complete NPHIL headquarters with Reference Lab
- Fence and renovate NPHIL facilities outside HQ
- Construct new properties including labs facilities

**Intervention 5.6.12.2:** Expand ICT infrastructure and data management system to improve communication and security

**Priority Actions**

- Build a network infrastructure for data management and storage at national and county levels
- Build the technical capacity of ICT staff to operate and maintain the data management and storage system
- Enhance communication and information sharing

*Sub-sector 5.7: Public education and information dissemination*

Strategic Objective 13: Strengthen public health risk communication at all levels

**Intervention 5.7.13.1:** Expand public health education and information dissemination to mitigate public health threats

**Priority Actions:**

- Strengthen the capacity of the communication division
- Establish an institutional framework for risk communication and community engagement
- Establish education and information dissemination framework to improve NPHIL public image

*Sub-sector 5.8: Program Performance Monitoring and Evaluation Framework*

Strategic Objective 14: Improve program performance and monitoring to track the progress of the implementation of the strategic plan and document learning.

**Intervention 5.8.14.1:** Expand and enhance planning, monitoring, and evaluation of program outcomes and impact

**Priority Actions:**

- Develop and implement a framework to track SP implementation
- Institute the coordination mechanism to implement the SP

- Conduct quarter and annual program performance evaluation and planning retreats
- Conduct mid-term review of the implementation of the Strategic Plan
- Conduct final or post implementation evaluation of the Strategic Plan
- Improve database to transition from MS-Excel to R software
- Strengthen NAPHS implementation

#### Sub-sector 5.9: Legal framework

**Strategic Objective 15:** Strengthen NPHIL’s Legal Framework to coordinate and regulate adherence to Public Health safety and security measures

**Intervention 5.9.15.1:** Establish and strengthen the framework for NPHIL legal guidance

#### **Priority Actions:**

- Institute a legal framework to protect assets of NPHIL
- Institute legislation, regulation and policies to improve public health

#### Implementation Arrangements

The success of the implementation of this plan will depend on effective (a) partnership coordination mechanisms for policy oversight, resource mobilization, allocation, and alignment to the national priorities; (b) mechanisms for the coordination of public health program implementation at all levels; and (c) a transparent management coordination system for tracking program performance and financial inflow and outflow.

#### *Public Health Sector Coordination Committee (PHSCC)*

A high-level national public health coordination committee will be instituted for partnership coordination and to oversee the implementation of the strategic plan. The main role of this committee is to ensure that resources are mobilized and transparently allocated based on the national priorities defined in the strategic plan. This committee will be exclusively comprised of heads of donor agencies and key government ministries and agencies directly involved with public health. It will be chaired by the director general of NPHIL. The committee will meet quarterly to discuss reports on the progress of the implementation of the plan and make policy decisions on resource mobilization, allocation, and application in the implementation of the plan. The activities of the committee will be coordinated by the global partnership unit..

### *Program Coordination Committee*

The national program coordination committee will be set up to provide technical oversight for the implementation of the strategic plan. Under the leadership of the deputy director for technical services, the committee will ensure that annual plans are crafted from the strategic plan. It will also ensure that all public health interventions implemented by development partners and divisions within NPHIL are synchronized with national program priorities contained in the annual plans. This approach is designed to prevent overlap of program activities and ensure that the best success-driven program strategies are applied. The committee will be composed of heads of national development organizations, including program directors of donor partners, division heads of the NPHIL, and other government ministries and agencies. The committee will meet quarterly to discuss program issues, program performance, challenges, and recommendations. The reports from these meetings will be presented to the PHSCC for decision-making.

### *Program performance measurement*

To track implementation of the strategic plan, the monitoring and evaluation framework has been developed to provide a roadmap and methodology to measure performance. Performance tracking will be coordinated by the monitoring and evaluation division of the NPHIL in collaboration with the monitoring and evaluation focal persons of partner agencies operating within the public health sector.

### *Program monitoring framework*

Quarterly field-based program monitoring visits will be conducted to measure progress and identify key program implementation challenges. Reports from these quarterly monitoring exercises were presented at the program coordination meeting for decision-making. An annual program implementation conference will be held to review the implementation of the annual plan, track progress, identify challenges, learn lessons, and make recommendations. At these annual conferences, priority interventions will be drawn from the strategic plan to produce the new annual plan.

### *Program Evaluation Framework*

The framework proposes that mid-term and end-of-program evaluations will be conducted. A mid-term evaluation will be conducted after the first two years of implementation of the

strategic plan. This process should preferably be conducted by an external consultant with vast experience on the program. Results from the evaluation will be used to reform or restructure the implementation of the strategic plan. In the final year of the implementation of the strategic plan, a post-implementation evaluation will be conducted. The results of the evaluation will be presented at the annual conference for endorsement and identification of new priorities for the development of the new strategic plan.

### *Financing the Plan and Financial Performance Tracking*

**Funding Strategy:** Financing the strategic plan remains critical. Government funding to the public health sector over the last five years has declined. Donor funds mainly finance the implementation of the 2018–2022 strategic plan. Internal capacity to attract and manage private sector funds was limited. Drawing on these lessons learned, multiple funding approaches will be adopted to finance the strategic plan. The HSCC mechanism will be used to negotiate with donors for sustained funding and advocate with the Government of Liberia to increase budgetary support to the public health sector. Accessing funding from the private sector through grant applications and donations is key. The grant management unit will be strengthened to design and implement fundraising events. Fees for service measures will be introduced as well.

**Financial Performance Tracking:** The NPHIL management system operates in compliance with the Public Financial Management Act to ensure that public and private funds provided are properly used and accounted for with the support of the internal audit unit, procurement unit, and strong financial system. Financial audits are performed by the Government Auditing Commission, the government agency responsible for auditing all public institutions in Liberia. To further ensure financial transparency and accountability, these integrity systems will be strengthened. The financial management system will be updated, and qualified staff will be retained. A certified private auditing firm should be commissioned to conduct annual audits. Additional measures will be taken to ensure that donor and private funds generated from grants and donations are accounted for according to the specific funding guidelines. Fund inflow and outflow will be tracked, published, and shared with the stakeholders at the PHSCC quarterly meetings. The institution of all these measures will ensure that the integrity system is strengthened, donor confidence increases, and fund inflow increases.

## IV. Annex:

### Situational Analysis Report:

#### Country Profile:

Liberia's population is approximately 5 million people, with an annual growth rate of approximately 2.1%, and most of its population lives in densely populated urban and rural communities across its 15 counties. Liberia has a relatively young population, with approximately 52.7 percent of its population under the age of 20, and overall low education rates; as such, the combined factors of teenage pregnancy (30%) and low levels of contraceptive prevalence (24%), contribute to Liberia's high total fertility rate of 4.2 children per woman<sup>2</sup>.

The 2019-20 Demographic and Health Survey (DHS) estimated under-5 mortality at rate of 93 deaths per 1,000 live births, the infant mortality rate, or deaths before the first birthday, as 63 deaths per 1,000 live births and the newborn mortality rate of 37 per 1,000 live births, while the maternal mortality ratio is 742 per 100,000 live births (DHS 2019–20).

#### Overview of Public Health Surveillance Status

The Ebola outbreak in West Africa illustrated how quickly and widely a disease may spread, crossing regional and international borders. Emanating in rural Guinea, the virus quickly spread to the densely populated urban areas in Liberia, Guinea, and Sierra Leone due to porous borders with little or no disease surveillance capacities and abilities. In Liberia's post-Ebola recovery, the NPHIL was established to lead and coordinate with regional countries to conduct comprehensive disaster risk mapping, develop strategies to mitigate risk, and respond to disasters and diseases with epidemic potential.

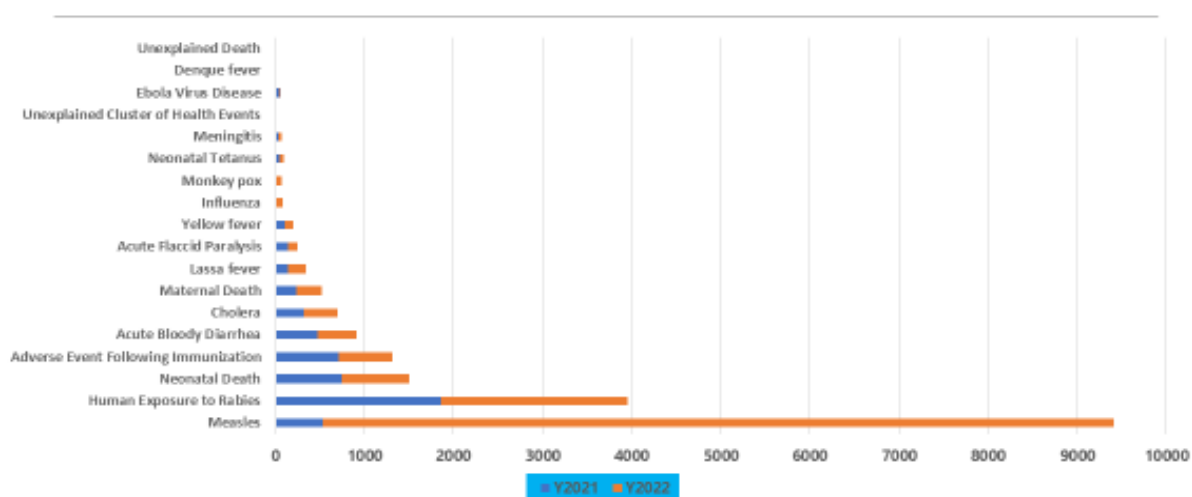
Building on surge capacities from the Ebola Virus Disease Epidemic of 2014–2015, NPHIL has successfully led emergency operations by activating and deactivating the Emergency Operations Center (EOC) and Incident Management System (IMS) at national, county, levels during disease outbreaks for other IDSR reportable diseases. For about a decade, the Ministry of Health (MOH) adapted a generic Integrated Disease Surveillance and Response Technical (IDSR) guideline supported by the World Health Organization's Regional Office for Africa

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<sup>2</sup> Liberia Demographic and Health Survey, 2019–20

(AFRO) in collaboration with the United States Centers for Disease Control and Prevention (CDC) in Atlanta. To date, the guidelines have been routinely updated to serve as a general reference for surveillance activities across all levels, as a guide for improving early detection and preparedness activities, improving and timely investigation and response, and as a resource for developing training, supervision, communication of outbreak information, and evaluation of surveillance activities. Liberia now implements the 3<sup>rd</sup> edition of the IDSR guideline, which was updated and adopted by NPHIL and its partners to incorporate new emerging diseases, including COVID-19, and provide sustained guidance to help build and strengthen surveillance systems for priority diseases, conditions, and all other public health threats.

Like previous versions, the 3<sup>rd</sup> edition IDSR targets health workers at all levels (including surveillance officers, clinicians, and public health workers); veterinary and wildlife health officers; and other public health experts, including NGOs and civic society groups. The IDSR 3 edition also introduces a One Health approach to public health surveillance and the development and use of an electronic IDSR (e-IDSR); the linkage between Disaster Risk Management (DRM) and IDSR. As of 2021, there are 23 IDSR reportable diseases, conditions, or events being tracked by NPHIL. The figures below show diseases, conditions, or events occurring in 2021 and 2022 and the response turnaround time as coordinated by NPHIL in 2022.



*IDSR diseases, conditions or events reported in 2022 compared to 2021 - 1*

15 Counties

29 Outbreaks Detected

Outbreak Description	Frequency	Outbreak Investigated	Notification & Response		
			≤2 days	3-7 days	≥ 8 days
Lassa fever	8	8	7	1	0
Measles	15	15	1	4	10
Monkeypox	5	5	3	2	0
ABD	1	1	0	1	0
<b>Total</b>	<b>29</b>	<b>29</b>	<b>11</b>	<b>8</b>	<b>10</b>

*Response turnaround time in 2022 - 1*

On March 11, 2020, the World Health Organization (WHO) declared a global pandemic as the coronavirus rapidly spreads across the world. The NPHIL immediately activated the Public Health Emergency Operation Center (PHEOC) in collaboration with the MOH and its partners and began implementing the National COVID-19 Response Plan, which promoted early detection, active case finding, contact tracing, infection prevention and control (IPC), and the care of suspected and confirmed cases of COVID-19. Specific containment measures instituted included the early deployment of surge staff at various ports of entry (PoEs) and strengthened screening of all incoming and outgoing travelers at PoEs. Over 500 contact tracers were activated throughout the country; activities for risk communication and community engagement were initiated to inform the public about preventive measures; and training of rapid response teams in all counties on case management and IPC. Additionally, a presidential mandate was instituted for mandatory mask wearing in public places and several measures of lockdown; schools, churches, and other public gatherings were prohibited for 21-day intervals, and these mandates were reviewed appropriately as the situation progressed.

As of June 30, 2020, the outbreak had resulted in an estimated 10.5 million cases and 512,000 deaths in 213 countries and territories. Liberia recorded its first case on COVID-19 on March 16, 2020, and as of March 16, 2022, the country had recorded 7,397 cases and 294 deaths<sup>3</sup>. The strong coordinated efforts instituted by the government and its partners, with all hands on deck

<sup>3</sup> WHO: <https://www.afro.who.int/countries/Liberia/news/improving-response-to-ebola-in-Liberia-two-years-first-COVID-19-case>



to ensure that public health measures (including social distancing, mandatory mask wearing, improved testing, treatment, and surveillance) were instituted at all levels and resources mobilized to sustain these measures, demonstrate the improved capacity to respond effectively to public health treatments, despite constant resource constraints.

#### Overview of NPHIL SWOT Analysis:

As part of the document review for the development of NPHIL’s 2023-2028 Strategic plan, the review notes from the previous strategic planning workshop facilitated by John Hopkins which resulted in the revision of NPHIL’s Vision and strategic goals. The below findings from the SWOT analysis conducted during that workshop was determined to be valid and valuable reference for the development and implementation of the next 5 years strategic plan 2023-2028.

Strength	Weakness
<ul style="list-style-type: none"> <li>- NPHIL has good response, surveillance, lab capacity</li> <li>- Ebola set up strong systems which trained staff to respond rapidly and send out alerts</li> <li>- Expertise in core functions, cross cutting</li> <li>- Strong working relations between colleagues, excellent staff willing to go above and beyond for the people</li> <li>- Easy access to necessary information to respond appropriately to health needs</li> <li>- Good level of coordination with</li> <li>- One Health approach utilized, and collaborations work well with (e.g., agriculture dept)</li> <li>- County IMS structure carried through from national, sub-national level</li> </ul>	<ul style="list-style-type: none"> <li>- Untimely reviews of progress and prioritization of activities.</li> <li>- Unrealistic objectives and goals</li> <li>- Previous strategic plan was based on ambition for a new institution (NPHIL) - now that we have faced reality, we need to stipulate how we are going to get funding and implement</li> <li>- Ineffective organization structures for sustainable access and management of grants. (e.g., Looking at strategic direction of grants management department which has been divorced from global health department - we need to count more on grant support rather than central government funding/support)</li> </ul>
Opportunities	Threats:
<ul style="list-style-type: none"> <li>- Visibility</li> <li>- Leading responses and recognition</li> <li>- Readiness of the partners to assist with response is there</li> <li>- NPHIL should diversify (National diagnostic lab should break down into regional hubs)</li> <li>- Accreditation of NPHIL labs (SOA standard 15089?)</li> <li>- Rapid response team &amp; ONE HEALTH approach (animal, human,</li> </ul>	<ul style="list-style-type: none"> <li>- Funding</li> <li>- Sustainability</li> <li>- Lack of independence from Ministry of health (autonomy)</li> <li>- Still a discussion around NPHIL being reintegrated into MOH as a department (undermining)</li> <li>- HRA structure for NPHIL</li> <li>- Staff on NPHIL payroll, staff on MOH payroll (regional center) - changes who staff a loyal to and report to</li> </ul>

<p>environment) should have a joint response</p> <ul style="list-style-type: none"> <li>- Leverage and build on capacity (staff retention: training staff who leave immediately after hiring - retention policy?)</li> <li>- Narrow expectations e.g., Bio safety and security</li> <li>- Data security</li> <li>- As a center of excellence, we should be able to diversify.</li> <li>- Increase technical skills and knowledge to match the specific needs of partners and administrative needs.</li> <li>- Improve national resource allocation - with decentralization of NPHIL into 5 blocks training needs to move to more technical aspects</li> </ul>	<ul style="list-style-type: none"> <li>- What happens to the staff if funding dries up for the project they are assigned to</li> <li>- Employment is threatened based on project lifetime</li> <li>- Lower national support of the institution (NPHIL)</li> <li>- Difficulty mobilizing resources nationally not just NPHIL</li> </ul>
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#### PESTEL Analysis Tool - NPHIL Strategic Plan

#### PESTEL

To put into proper perspective and further expand the context of the result shown in the above SWOT analysis, the consultant utilized a political, economic, Social, Technological, Environmental, and legal (PESTEL) analytic framework for a brief review of NPHIL’s operating environment. The PESTEL analytic, formerly known as the PEST is a commonly used strategic framework by management consultants to guide stakeholders in evaluating the prevailing contextual conditions in which a firm or institution operates. PEST is an acronym for Political, Economic, Social, and Technological and most recently an addition of environmental and legal factors has expanded the framework, thus the new acronym PESTEL.<sup>4</sup>

Political Environment			
Context	RISK	Opportunities	Key action
<ul style="list-style-type: none"> <li>● Fragile political landscape and elections</li> </ul>	<ul style="list-style-type: none"> <li>● Rapid change in structure and leadership</li> <li>● Shift in political will</li> </ul>	<ul style="list-style-type: none"> <li>● Renewed vigor in leadership</li> <li>● Stronger commitment of public health security and safety</li> </ul>	<ul style="list-style-type: none"> <li>● Set up transitional mechanism for continuity</li> <li>● Develop orientation guidelines a need to know for potentially new leadership</li> <li>● Identify and empower a transition committee</li> </ul>
Economic Environment			

<sup>4</sup> <https://corporatefinanceinstitute.com/resources/management/pestel-analysis/>

<ul style="list-style-type: none"> <li>● Low-income country, with majority of its population unable to access health.</li> <li>● Low national budgetary allotment for public health surveillance and security measures</li> </ul>	<ul style="list-style-type: none"> <li>● Reversal of gains made in strengthening public health safety and security</li> <li>● Donors' fatigues</li> </ul>	<ul style="list-style-type: none"> <li>● Dedicate grant management team</li> <li>● Sustained international partners commitment</li> </ul>	<ul style="list-style-type: none"> <li>● Enhance capacity of grants management team for resource allocation, mobilization and management</li> <li>● Strengthen national resource allocation through advocacy for increase budgetary support and public private partnerships</li> </ul>
<b>Social</b>			
<ul style="list-style-type: none"> <li>● Majority of the population live in densely populated urban and rural areas</li> <li>● Very low secondary educational levels among the population</li> <li>● Strong traditional values and belief systems</li> <li>● Poor Hygiene and sanitation practices</li> </ul>	<ul style="list-style-type: none"> <li>● High disease prevalence</li> </ul>	<ul style="list-style-type: none"> <li>● Surge capacity and good community knowledge of preventive measure against epidemic prone diseases</li> <li>● Stronger community event-based surveillance systems</li> </ul>	<ul style="list-style-type: none"> <li>● Robust community engagement and risk communication</li> <li>● Sustain community event-based surveillance activities</li> <li>● Sustainable network of decentralized laboratory and diagnostic services</li> </ul>
<b>Technological</b>			
<ul style="list-style-type: none"> <li>● Very limited telecommunication structures and internet infrastructure for full optimization of technology in National public health safety and security.</li> <li>● Good public awareness and access of social media platforms due to availability of telecommunications</li> </ul>	<ul style="list-style-type: none"> <li>● Low interest and priority for the adoption of effective technology to enhance public health safety</li> <li>● Data insecurity</li> </ul>	<ul style="list-style-type: none"> <li>● Stronger Liberia telecommunication company with expand network for internet access and telecommunication</li> <li>● Business competition among telecommunication companies to expand network access</li> </ul>	<ul style="list-style-type: none"> <li>● Advocate with LIBTELCO to expand network access for phone services to remote communities not covered by private provider</li> <li>● Build public private partnerships with existing telecommunication services to develop and institutes technology to optimize public health security and safety</li> </ul>
<b>Environmental</b>			
<ul style="list-style-type: none"> <li>● Ineffective solid waste and</li> </ul>	<ul style="list-style-type: none"> <li>● High prevalence</li> </ul>	<ul style="list-style-type: none"> <li>● High global and national</li> </ul>	<ul style="list-style-type: none"> <li>● Improve community engagements</li> </ul>

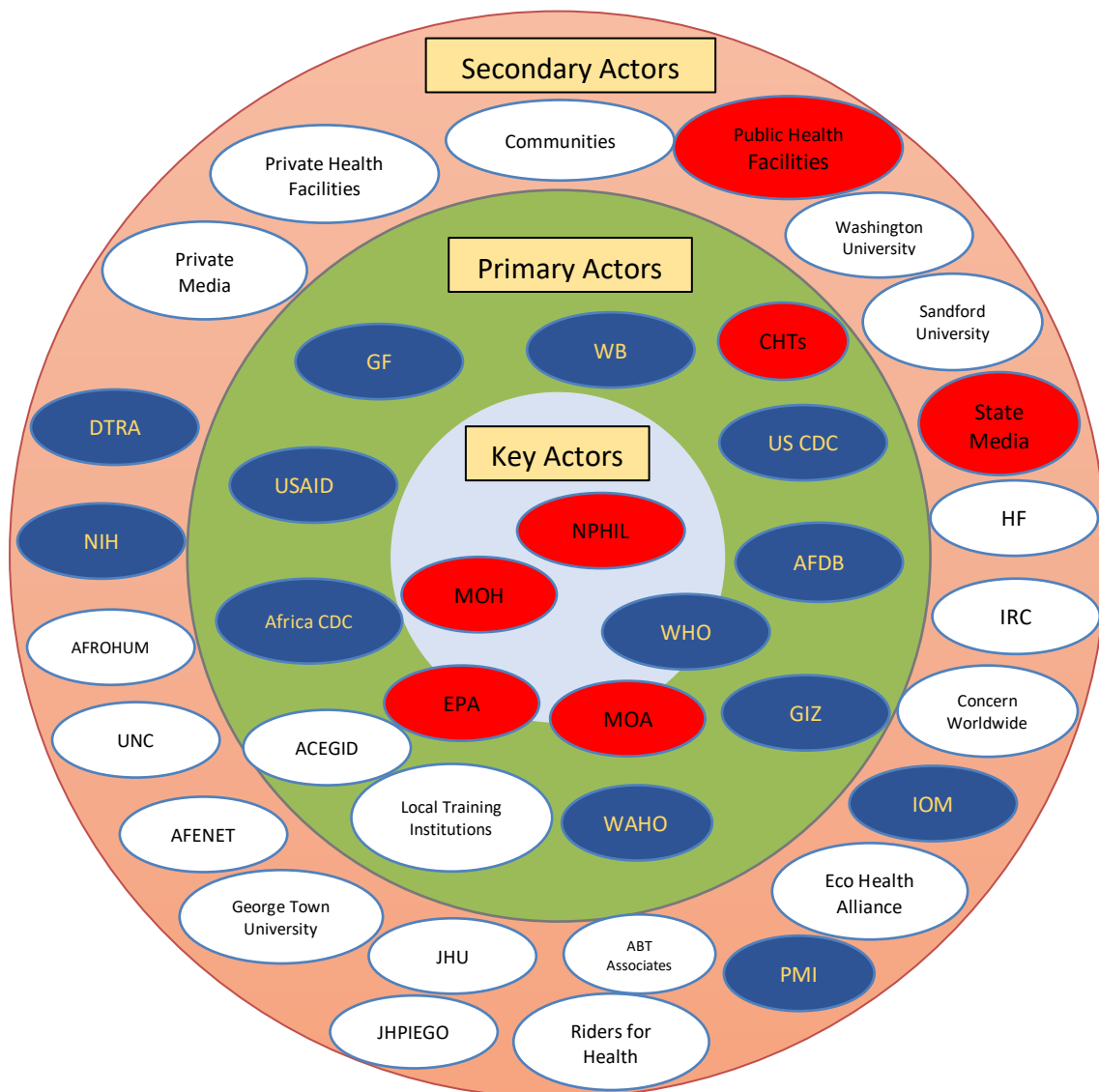
<p>sanitation management systems in densely populated communities.</p> <ul style="list-style-type: none"> <li>• Lack of coordination and proper waste disposal mechanisms for medical and non-medical waste</li> <li>• Lack of coordinate approach to food and hygiene surveillance among various sectors</li> </ul>	<p>e of diseases</p> <ul style="list-style-type: none"> <li>• Uncontrolled mechanisms for early detection of emerging public health diseases and events</li> </ul>	<p>priorities for one-health surveillance</p> <ul style="list-style-type: none"> <li>• Existing policies for proper waste management, and IPC practices in the public health systems</li> </ul>	<ul style="list-style-type: none"> <li>• Expand environmental and occupational health programs to community health program</li> </ul>
Legal			
<ul style="list-style-type: none"> <li>• NPHIL enacted into law by legislative processes</li> <li>• Several functions and departments adopted from various sectoral Ministries which share these functions still</li> <li>• Government Decentralization process underway and present challenges for implementation at county levels</li> </ul>	<ul style="list-style-type: none"> <li>• Prolonged limitations in the implementation of core functions</li> </ul>	<ul style="list-style-type: none"> <li>• Good interest for intersectoral coordination</li> </ul>	<ul style="list-style-type: none"> <li>• Advocate to establish proper inter-sectoral legal and regulatory framework with all actors</li> </ul>

### Stakeholder Map:

The below stakeholders' map<sup>5</sup> identifies existing players in the public health security and safety sector in Liberia. It categorizes these stakeholders based on their distinguished level of influence, oversight and ownership.

<sup>5</sup> [http://transferproject.org/wp-content/uploads/2016/11/NYP\\_GIZ\\_TRANSfer\\_Tool-1-4-1\\_Stakeholder-Map.pdf](http://transferproject.org/wp-content/uploads/2016/11/NYP_GIZ_TRANSfer_Tool-1-4-1_Stakeholder-Map.pdf)

- “Key stakeholders” are actors who can use their skills, knowledge or position of power to significantly influence national public health security and safety activities in Liberia. These stakeholders are actors without whose leadership, oversight and or participation the targeted all initiatives of public security and safety outlined in the strategic plan and beyond cannot be achieved.
- “Primary stakeholders” – these are actors of major importance as well, whose involvement and support will significantly enhance the implementation of public health security and safety. They are often involved for a limited period and focused on specific objectives and interventions.
- “Secondary stakeholders” these are actors whose involvement in the implementation of public health security and safety are indirect or temporary service providers or intermediary service organizations



- Government of Liberia
- Bilateral Partners / Donors
- Private Sectors / NGOs

For reflection on the stakeholder landscape, the above stakeholder map demonstrates and categorizes stakeholders based on their interest, involvement, and roles in ensuring public health safety and security in Liberia. At its core, NPHIL is a key actor with ownership and shared responsibility with the MOH to set strategic vision and goals, organize strategic partnerships, align the interests and priorities of all stakeholders (primary and secondary with key actors), and facilitate the implementation of all public health safety and security at all levels. As key actors, the full responsibilities for ensuring public health safety are theirs through strategic partnership and coordination with primary and secondary actors. *See full list of NPHIL partners and specific interest as of 2023 in table below:*

National Public Health Institute of Liberia (NPHIL) – Partners Mapping		
Technical areas	Partners	Key Focus 2023
Infectious Disease and Epidemiology (DIDE)	CDC through CoAG	Supporting Emergency Operation Center management
	WHO, CDC, Africa CDC, GIZ, Jhpiego, Health Focus, AFROHUN, IRC, RTSL, AFENET, IOM, African Development Bank, and WB/REDISSE	Surveillance, disease, detection, preparedness and response, Data management, and Port Health
Training and Capacity Building	CDC through AFENET, WAHO, WHO, JHU	Field Epidemiology Training Program (frontline and intermediate), IDSR Training, Training and capacity needs assessment
Laboratory and Public Health Diagnostic	WHO, US-CDC, Africa CDC, WAHO, NIH, DTRA, USAID, Global Fund WB, African Development Bank(AfDB)	Supporting all Lab activities
	DTRA	Construction of the new National Reference Laboratory and the National Public Health Institute of Liberia
	Riders for Health, AFENET, Jhpiego, ASLM, ASM, APHL, IDDS, GHSS	Implementing Lab activities
	University of North Carolina (UNC) and Eco- Health Alliance (EHA)	Collaborating partners

Environmental and Occupational Health (DEOH)	UNICEF, WHO, USAID, GIZ, WB, Georgetown University, Concern Worldwide	Water Quality monitoring/surveillance, Community Led Sanitation, WASH in Healthcare facilities and occupational health
Liberia Institute of Biomedical Research	NIH (PREVAIL)	Capacity building through clinical research (lab. Training for junior scientists and research associates)
	JWARG/ACESO	Conduct sepsis study in Bong County (Phebe hospital)
	JWARG/NAMRU-3	Laboratory support at LIBR (support for hematology, microbiology and clinical chemistry), Human resource development
	JWARG/MHRP	Malaria surveillance and arbovirus research, Military HIV R Project search
	PREDICT/ Eco Health Alliance	Research sampling wide life for viral agent of zoonotic diseases, Animal welfare and conservation
	Eco Health Alliance	Consensus PCR, qPCR, next generation/high-through output sequencing
	DTRA through Eco Health Alliance	Reducing the threat from high-risk pathogens causing febrile illness in Liberia
	EDCTP	Rapid evaluation of Plasmodium falciparum Transmission Blocking Vaccine (PfTBV) candidates through enhanced African Resource Centers (ARC) for integration into malaria control and elimination
	CEPI	Prospective Multi-Site Cohort Study to estimate incidence of infection and disease due to Lassa Fever virus in West African Countries
	NIH (LMIV)	Propel Malaria project (Malaria in pregnancy and children in Liberia)
	PMI/ABT Associates incorporated	Vector link project
	NIH	Training on FANG analysis, Western Blot, Cloning techniques, Luminex Platform
	Africa Center of Excellence for Genomics of Infectious Diseases (ACEGID)	Conducting training on Genomics
Redeemer's University	Training in Molecular Biology and Genomics	
Scripps Research WARN-ID (CREID Network)	Acute Febrile Illness Research	

	US-CDC through University of Hawaii	Advancing Infectious Disease Detections and Response in Liberia (Ebola, Hep B & C influenza)
	Stanford University	Typhoid Fever Research
	DOLF- Washington University	Onchocerciasis and Lymphatic Filariasis Research
	CDC (DTRA-CBEP)	Providing electrical support to LIBR



### Implementation Plan:

Strategic Objective 1: Contribute to the development of a competent and sustainable public health workforce for security and safety.							
Strategic Intervention	Priority Actions:	Timelines					Expected results/output
		Year 1	Year 2	Year 3	Year 4	Year 5	
1.1.1: Develop and implement a national public health workforce policy and strategy	Conduct a public health workforce need assessment for NPHIL	X					
	Develop a public health workforce policy and strategy	X					
	Roll-out and implement the public health workforce policy and strategy		X	X	X	X	
1.1.2: Develop the institutional capacity of NPHIL to implement the public health workforce policy and strategy	Conduct an institutional capacity assessment (management systems, individuals, and infrastructure)	X					
	Develop and implement an institutional capacity building plan	X	X	X	X	X	
	Establish an effective coordination mechanism for in-service and short-term training in all NPHIL functional areas	X	X	X	X	X	

### Investment Pillar 2: Integrated disease surveillance and response systems

Strategic Objective 2: Strengthen and Integrate the national surveillance system to predict, prevent, and detect events of public health security							
Strategic Intervention	Priority Actions:	Timelines					Expected results/output
		Year 1	Year 2	Year 3	Year 4	Year 5	

2.1.2.1: Strengthen early warning public health surveillance system at all levels	Develop and implement an operational plan and SOPs for the surveillance system at all levels	X					
	Develop and implement an interoperable and inter-connected electronic real time surveillance reporting system at both national and sub-national levels for both indicator- and event-based surveillance		X				
	Build effective surveillance structures within communities for early detection of any potential public health hazards		X	X	X	X	
	Collaborate with other agencies to strengthen regional and international surveillance networks.	X					
	Expand and build capacity of POEs to effectively conduct cross border surveillance and data sharing	X	X	X	X	X	
Strategic objective 3: Strengthen the national public health preparedness and response system to control any pathogens with epidemic-potential safely and accurately, including known, emerging, re-emerging, and novel threats.							
2.2.3.1 Develop national multisectoral and multi-hazard emergency preparedness and response capacity.	Develop and implement a national multisectoral multi-hazard emergency preparedness coordination mechanism	X					
	Develop a national multi-sectoral preparedness and response regulatory framework.	X					

	Implement and maintain a system to ensure the availability of essential emergency preparedness and response stocks at national, regional, and county levels.		X	X	X	X	
	Strengthen EOC capacities, procedures, and plans at national and county levels.	X	X	X	X	X	
	Develop capacity at national and county levels to respond to public health emergencies, including training rapid response teams and conducting live simulation drills.	X	X	X	X	X	
		X	X	X	X	X	

### Investment Pillar 3: Public health laboratory diagnostics system

Strategic Objective 4: Strengthen Public Health Laboratories Diagnostic System to Enhance One-Health Surveillance and Response							
Strategic Intervention	Priority Actions:	Timelines					Expected results/output
		Year 1	Year 2	Year 3	Year 4	Year 5	
3.1.4.1 Expand Laboratory testing capacity and Infrastructure for priority testing	Update and disseminate testing protocols to conduct testing of priorities, emerging, re-emerging diseases, heavy metal, chemical analysts, electrolytes, and Toxin	X					
	Expand diagnostic capacity to cover priorities disease, emerging disease, re-emerging diseases, heavy metal, chemical analysts, electrolytes, and Toxic priorities emerging and re-emerging diseases		X	X	X	X	

	including IDSR immediately reportable, epidemic prone and IHR core tests.						
	Develop a decentralization plan for establishment of regional public health labs	X	X	X	X	X	
	Build lab workforce capacity for testing priorities disease, emerging diseases, re-emerging diseases, heavy metal, chemical analysts, electrolytes, and Toxins.	X	X	X	X	X	
	Develop an essential OH essential diagnosis list (EDL)	X	X	X	X	X	
3.1.4.2 Establish an effective One health national laboratory diagnostic network with strengthened specimen collection, referral and transport system	Develop and strengthen sample transport system for One Health	X					
	Develop guidelines and SOPs for networking and information sharing		X	X	X	X	
	Institute a mechanism for networking and information sharing among lab stakeholder	X	X	X	X	X	
	Establish a national one health Biobank at the NPHRL Lab	X	X	X	X	X	
	Strengthen AMR diagnostic capacity at national and sub-national Laboratories	X	X	X	X	X	
	Train laboratorian of public and private health facilities for testing antimicrobial pathogens and establish referral	X					
	Institutionalize at NPHRL a One health standardized AMR data collection, reporting, archiving and inventory system		X	X	X	X	
3.1.4.3: Implement a robust national	Strengthen the quality management systems units at national and sub-national laboratories	X	X	X	X	X	

laboratory quality management system	Develop national policy guidelines and strategies for public health lab reporting, monitoring and evaluation	X	X	X	X	X	
	Revise and implement the total quality management standards (TQMS) in accordance with the ISO15189.: 2022	X	X	X	X	X	
	Establish a national quality assurance program	X					
3.1.4.4 Establish an interoperable laboratory information management system	Develop a one health laboratory policy and SOP on data quality management		X	X	X	X	
	Strengthen existing inter-operable electronic platform for one health laboratory information management system	X	X	X	X	X	
3.1.4.5: Establish an efficient One Health Biosafety and Biosecurity system	Develop and implement a biosafety and biosecurity system for all One Health sectors	X	X	X	X	X	
	Develop a One Health laboratory workforce capacity on biosafety and biosecurity	X	X	X	X	X	
	Review the national biosafety and biosecurity guideline and develop the BSS framework, strategy, and policy						
<b>Objective 5: Strengthen public health and biomedical research to generate evidence that informs health policies and actions.</b>							
Strategic Intervention	Priority Actions:	Timelines					Expected results/output
		Year 1	Year 2	Year 3	Year 4	Year 5	
3.2.5.1: Strengthen the national public health research	Strengthen and expand NPHIL research capacity in priority areas as indicated in the research agenda	X					

agenda based on current public health realities.	Develop and implement plans for capacity building of researchers and scientists		X	X	X	X	
	Regularly revise and disseminate the research agenda of the National Public Health Institute of Liberia (NPHIL)		X	X	X	X	
3.2.5.2: Strengthen policies to guide the conduct of public health and medical research	Enhance the existing policies that govern research practices, namely those pertaining to authorship, scientific integrity, and the sharing and utilization	X	X	X	X	X	
	Implement internal processes for protocol development and prioritization	X	X	X	X	X	
3.2.5.3: Coordinate and streamline research activities taking place within NPHIL	Work with other technical divisions to analyze existing data for scientific publications and presentations	X	X	X	X	X	
	Conduct scientific writing trainings/workshops for technical divisions within NPHIL	X	X	X	X	X	
3.2.5.4: Implement interdisciplinary collaborative research including in the context of One Health	Develop and implement internally led research projects on diseases and conditions as highlighted in the NPHIL research agenda	X	X	X	X	X	
	Establish international and local research collaborations for the conduct of research in priority areas as indicated in the NPHIL research agenda	X	X	X	X	X	
	Implement research in the context of One Health and emergency research	X	X	X	X	X	

Strategic Objective 7: Create strong partnership network to mobilize resources for public health							
Interventions	Priority Actions:	Timelines					
		Year 1	Year 2	Year 3	Year 4	Year 5	Expected results/output
4.1.6.1 Ensure access to safe drinking water	Institute and implement a national system to ensure public access to safe drinking water	X					
	Build the human resources and logistical capacities of water quality laboratories at national and county levels		X	X	X	X	
	Create the respond capacities of counties to robustly respond to potential outbreaks	X	X	X	X	X	
	Build community structures and capacity to improve water quality for house and community consumption	X	X	X	X	X	
	Establish an effective sectoral coordination mechanism to promote environmental health	X	X	X	X	X	
4.2.6.1 Increase community knowledge to adapt acceptable hygiene and sanitation practices	Scale up the implementation of the Community Led Total Sanitation (CLTS) program nationwide	X					
	Support and collaborate with county health teams to provide hygiene promotion services in communities		X	X	X	X	
4.3.6.1 Strengthen national surveillance systems for foodborne diseases and food contamination	Develop and implement a national strategy and SOPs for food safety	X	X	X	X	X	
	Educate the public on food safety to prevent contamination and outbreak	X	X	X	X	X	
	Expand the capacity of the food safety unit	X	X	X	X	X	

	Establish comprehensive food-borne disease surveillance system with and food safety analysis capacity in the 15 counties	X					
	Established an effective inter-sectoral collaboration mechanism on food safety at policy and technical levels		X	X	X	X	
4.4.6.1 Improve the health care waste management at all levels	Support county health teams to establish systems and structures to manage healthcare waste	X	X	X	X	X	
	Develop national plan for health care waste management	X	X	X	X	X	
	Develop infrastructure and logistical capacities of all health facilities to properly handle health care waste	X	X	X	X	X	
	Modernize the Disco Hill centralized waste management treatment plant and burial site	X					
	Advocate for the establishment of at least one centralized waste management treatment plant and burial site in all counties		X	X	X	X	
	Strengthen the capacity of CHTs to conduct monitoring of in health facilities	X	X	X	X	X	
4.4.6.2. Strengthen structures for the safe handling and disposal of chemicals for the protection of human and environmental health	Collaborate with relevant stakeholders to develop national capacity to handle chemical, biological, radiological and nuclear substances including waste in Liberia	X	X	X	X	X	
4.4.6.3 Strengthen vector and vermin control program and services	Develop capacity at national and county levels to control vector and vermin of public health threats	X	X	X	X	X	



	Develop and implement vector and vermin control plan for communities and health facilities	X					
	Develop and implement vector and vermin control monitoring system		X	X	X	X	
4.5.6.4 Improve occupational health and safety at work places	Establish an intersectoral coordination mechanism on OH&S	X	X	X	X	X	
	Implement occupational health and safety guidelines	X	X	X	X	X	
	Develop capacity at national and county levels to inspect and monitor institutions to comply with the OHS guidelines of Liberia	X	X	X	X	X	
4.5.6.5 Increase capacity to deliver occupational health services at all levels	Create the logistic and managerial capacities of the County Health Teams to effectively implement and monitor programs	X	X	X	X	X	
	Create awareness on the importance of occupational health services through conferences, celebration of international holidays, etc.	X	X	X	X	X	
	Revise the National Environmental and Occupational Health Policy	X	X	X	X	X	

Investment Pillar 5: NPHIL's institutional effectiveness

Strategic Objective 7: Create strong partnership network to mobilize resources for public health

Timelines

Interventions	Priority Actions:	Year 1	Year 2	Year 3	Year 4	Year 5	Expected results/output
5.1.7.1 Establish the national public health coordination mechanism for resource mobilization	Develop and implement a strategic framework and policy guidelines for partnerships	X	X	X	X	X	
	Establish the national public partnership coordination committee	X	X	X	X	X	
	Build the capacity of the global health division for partnership coordination	X	X	X	X	X	
	Advocate for government to increase budgetary allocation to NPHIL	X	X	X	X	X	
	Establish a platform to solicit local funding from development partners	X	X	X	X	X	
<b>Strategic Objective 8: To increase Public Health Financing through grants</b>							
5.2.8.1 Solicit and Manage Public and Private Grants and Funding Opportunities for NPHIL	Update policy guidelines	X	X	X	X	X	
	Develop grant coordination and project management mechanism	X	X	X	X	X	
	Develop technical capacity to develop and manage grants and projects	X	X	X	X	X	
<b>Strategic Objective 9: Strengthen public health governance and management support systems to deliver quality services</b>							
5.3.9.1 Reform NPHIL governance structure to address current functional realities.	Develop and implement governance reform plan	X	X	X	X	X	
<b>Strategic Objective 10: Ensure sustainable financing and operations of the NPHIL</b>							
<b>Intervention 5.4.10.1:</b> Strengthen public health financial management system	Develop financial management policy and SOPs	X	X	X	X	X	
	Implement the 2009 public financial management law and regulation	X	X	X	X	X	
	Implement web base financial management system	X	X	X	X	X	
<b>Strategic Objective 11: Strengthen and maintain an effective and efficient procurement system</b>							

<b>Intervention 5.5.11.1:</b> Institute an efficient electronic procurement, inventory and logistics management system to track the procurement, warehousing and supply of goods	Develop an electronic procurement management system	X	X	X	X	X	
	Operationalize the procurement management system	X	X	X	X	X	
	Update procurement policy instruments/documents	X	X	X	X	X	
	Train end-users on procurement processes and SOPs	X	X	X	X	X	
	Implement a sustainable supply chain management system coordinated with the MOH and relevant partners	X	X	X	X	X	
	Create and implement Asset Management System supported by institutional policies for logistics and supply chain	X	X	X	X	X	
	Build the technical capacity of ICT staff to operate and maintain the data management	X	X	X	X	X	
<b>Strategic Objective 12: Improve physical and technical Infrastructure of NPHIL</b>							
<b>Intervention 5.6.12.1:</b> Increasing the number and quality of public health infrastructure	Create and implement NPHIL infrastructure development plan	X	X	X	X	X	
	Complete NPHIL headquarters with Reference Lab	X	X	X	X	X	
	Fence and renovate NPHIL facilities outside HQ	X	X	X	X	X	
	Construct new properties including labs facilities	X	X	X	X	X	
<b>Intervention 5.6.12.2:</b> Expand ICT infrastructure and data management system to improve communication and security	Build a network infrastructure for data management and storage at national and county levels	X	X	X	X	X	
	Build the technical capacity of ICT staff to operate and maintain the data management and storage system	X	X	X	X	X	

	Enhance communication and information sharing	X	X	X	X	X	
<b>Strategic Objective 13: Strengthen public health risk communication at all levels</b>							
Intervention 5.7.13.1: Expand public health education and information dissemination to mitigate public health threats	Strengthen the capacity of the communication division	X	X	X	X	X	
	Establish an institutional framework for risk communication and community engagement	X	X	X	X	X	
	Establish education and information dissemination framework to improve NPHIL public image	X	X	X	X	X	
<b>Strategic Objective 14: Improve program performance and monitoring to track the progress of the implementation of the strategic plan and document learning.</b>							
Intervention 5.8.14.1: Expand and enhance planning, monitoring, and evaluation of program outcomes and impact	Develop and implement a framework to track SP implementation	X	X	X	X	X	
	Institute the coordination mechanism to implement the SP	X	X	X	X	X	
	Conduct quarter and annual program performance evaluation and planning retreats	X	X	X	X	X	
	Conduct mid-term review of the implementation of the Strategic Plan	X	X	X	X	X	
	Conduct final or post implementation evaluation of the Strategic Plan	X	X	X	X	X	
	Improve database to transition from MS-Excel to R software	X	X	X	X	X	
	Strengthen NAPHS implementation	X	X	X	X	X	
<b>Strategic Objective 15: Strengthen NPHIL's Legal Framework to coordinate and regulate adherence to Public Health safety and security measures</b>							
5.9.15.1 Establish and strengthen the framework for NPHIL legal guidance	Institute a legal framework to protect assets of NPHIL	X	X	X	X	X	
	Institute legislation, regulation and policies to improve public health	X	X	X	X	X	

