Government of Sierra Leone

Ministry of Health and Sanitation

COMPREHENSIVE EPI MULTI-YEAR PLAN 2017 – 2021

CHILD HEALTH/ EXPANDED PROGRAMME ON IMMUNIZATION

December, 2016

EXECUTIVE SUMMARY

Sierra Leone is currently a developing country with relatively high infant and under-fives morbidity and mortality rates (IMR and UFMR). The major causes of childhood morbidity and mortality include Malaria, Acute Respiratory Infections, Diarrhoea, newborn conditions and Malnutrition.

As the country continues to make relentless efforts to leap out of the era with the worst set of health indicators, available statistics reveals that Vaccine Preventable Diseases (VPDs) alone constitute over 30% of the causes of death among children under the age of five years (National Disease Surveillance Data 2008).

The present resolve of the health sector is to identify, adopt and implement high impact, evidence based and cost effective intervention to curb these ugly statistics. Immunisation has been identified as one of the best health investments relevant to the achievement of the sustainable Development Goal (SDG) 3 as well as the sustenance of socio-economic development of the country.

The international community recognizes that immunization is a global public good in that it provides overarching health benefits and positive externalities. Immunisation services are essential for meaningful social and economic development. However, the benefits of immunisation can only be realised when high coverage is achieved and maintained. This in turn depends on the attainment of Sustainable Immunisation Financing (SIF) through synergy among the partnership of relevant stakeholders.

The Expanded Programme on immunisation (EPI) in Sierra Leone was initially started on a small scale in the 1960s with the goal of reducing the huge burden exerted by childhood killer diseases. Subsequently, the EPI has evolved over the years amidst the challenges of contemporary times.
The programme attained Universal Child Immunisation (UCI) in 1990, with coverage of 75% for measles. This accomplishment underpins the fact that Sierra Leone can achieve greater coverage for various antigens if the appropriate programmatic ingredients are available.
Unfortunately, the gains of the past were gruesomely reversed during the decade long civil war, which ruthlessly disrupted social services and occasioned the massive displacement of populations into unusual settlements.

Owing to its cost effectiveness, immunisation is becoming increasingly more attractive as a compelling strategic intervention for the prevention and control of Vaccine Preventable Diseases (VPDs) in general. Moreover, it is now apparent that the rational selection and introduction of new and underused vaccines offers an excellent opportunity for countries to achieve the SDG 3.
There are growing prospects for the introduction of additional new vaccines into the routine immunisation programme. Yellow Fever vaccine was first introduced in the country in 1975 as a nationwide response campaign against an established outbreak at the time. Nevertheless, the vaccine has now been officially introduced routinely into the national Expanded Programme on Immunisation (EPI) since 2003. Subsequently, Sierra Leone has also successfully introduced the Pentavalent, Pneumococcal Conjugate Vaccine and Rota Virus Vaccine in 2007, 2011 and 2014 respectively. In December 2015, Measles Second Dose (MSD) was also introduced into the routine immunization service delivery system. Currently, the programme has eight (8) vaccines,

targeting a range of eleven (11) childhood killer diseases. Proposals have been submitted for the introduction of Inactivated Polio Vaccine (IPV) and Human Papilloma Virus (HPV) in 2017 as well as Measles Rubella (MR) vaccines in 2018.

Sierra Leone had administrative Penta 3 immunisation coverage of 86% in 2015.
The introduction of the Free Health Care Initiative (FHCI) has practically removed the principal barrier of cost to accessing health care delivery services, including immunisation. With the introduction of the Free Health Care Initiative, the volume of services delivered to children, pregnant women and lactating mothers has further increased.
EPI is the tracer programme of any successful Primary Health Care (PHC) delivery system. EPI also serves as a convenient vehicle for the effective integration of other relevant programmes into the mainstream of PHC. A robust EPI programme will further reinforce the gains of the Free Health Care Initiative.

The National Immunisation Programme (NIP) in Sierra Leone will only fulfil the current expectations if it continues to attract and retain priority focus and adequate funding on a firm foundation of strategic planning.
In a bid to further provide guidance for the course of programme expansion, improve programme performance and increase access to quality immunisation services in Sierra Leone, the Child Health/EPI programme in collaboration with partners has revised and updated the original version of the Comprehensive Multi Year Plan (cMYP). The current version covers the period 2017 – 2021.

The goal of the cMYP is to render the EPI programme more effective and efficient in contributing to the reduction of morbidity and mortality as well as the strengthening of the PHC delivery system.
The cMYP has been aligned with the National Health Sector Strategic Plan (NHSSP) of 2010-2015, which constitutes the overall road map to health service delivery in Sierra Leone. The document has been developed within the context of the Global Immunization Vision and Strategies (GIVS) and the premise of ensuring the constant availability of all ingredients relevant to the course of continuous immunisation service delivery. The plan aims to contribute towards the attainment of the Sustainable Development Goals (SDG 3) and socio-economic development of Sierra Leone.

The process of updating the original cMYP has been guided by several assessment and observational reports, which include: A systematic situation analysis of various components of the programme, Effective Vaccine Management (EVM) assessment report, Cold chain assessment report, Data Quality Self-assessment (DQS) report and EPI coverage survey.
The above reports have documented several deficiencies in the areas of human resource for health, vaccine and cold chain management, waste management, communication and availability of EPI logistics. Waste management and communication have been particularly weak areas in immunisation service delivery over the years.

A comprehensive long term waste management plan has now been developed, in the light of an expanding EPI programme in Sierra Leone.
Sustainable Immunisation Financing (SIF) is a critical aspect of ensuring the constancy of immunisation service delivery. As the worldwide debate on increasing advocacy for SIF gains

momentum, Sierra Leone is building on the foundation of the Financial Sustainability Plan (FSP) to launch an aggressive resource mobilisation advocacy.

It is worth mentioning that good infrastructural development and effective communication facilities will greatly enhance the delivery of immunisation services.
This updated version of the cMYP is expected to guide immunisation service delivery in Sierra Leone over the period 2017-2021. It has been formulated on the fundamental principles of human rights, equity, ownership and empowerment.

While the main hub of service delivery is through the fixed sites at the various PHUs, there is currently a high premium on strengthening outreach service delivery as a means of reaching every woman and every child with lifesaving interventions, irrespective of their socio-economic status or geographical location.

ACKNOWLEDGEMENTS

The Ministry of Health and Sanitation recognizes the fact that a document of this nature would not have been completed without immense contribution from various stakeholders. We, therefore, wish to extend sincere gratitude to the following institutions for their support and participation in the development of this comprehensive multiyear plan (cMYP).

1. Global Alliance for Vaccines and Immunisation (GAVI)
2. World Health Organisation (WHO)
3. United Nations Children's Fund (UNICEF)
4. Inter-Agency Coordinating Committee (ICC)

Several individuals have also made meaningful and painstaking contributions towards the accomplishment of this final product. They are unreservedly acknowledged.

This document will serve as reference for all stakeholders supporting EPI in Sierra Leone during the period 2017-2021.

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ACRONYMS

AD	Auto Destruct
ADB	Africa Development Bank
AEFI	Adverse Effect Following Immunization
AFP	Acute Flaccid Paralysis
AIDS	Acquired Immunodeficiency Syndrome
BCG	Bacillus Calmette Guerine
CBO	Community Based Organization
CEDAW	Convention on the Elimination of Discrimination Against Women
CH	Child Health
CHC	Community Health Centre
CHP	Community Health Post
CMYP	Comprehensive Multi-Year Plan
CRC	Convention on the Right of the Child
DFID	Department for International Development, UK
DHMT	District Health Management Team
DHS	District Health Sister
DMO	District Medical Officer
DOO	District Operation Officer
DPT	Diphtheria Pertussis and Tetanus
DQS	Data Quality Self Assessment5
DVD-MT	District Vaccine Management Tool
EDCU	Endemic Disease Control Unit
EPI	Expanded Programme on Immunization
EU	European Union
EVM	Effective Vaccine Management
FBO	Faith Based Organization
FELTP	Field Epidemiology and laboratory Training Programme
FHCI	Free Health Care Initiative
FHCI	Free Health Care Initiative
FSP	Financial Sustainability Plan
GAVI	Global Alliance for Vaccines and Immunization
GDP	Growth Domestic Product
GIVS	Global Immunization Vision and Strategies
GNP	Gross National Product
HIPC	Heavily Indebted Poor Countries
HIV	Human Immunodeficiency Virus
HSS	Health System Strengthening
ICC	Inter-Agency Coordinating Committee
IDSR	Integrated Disease Surveillance and Response
IFMIS	Integrated Financial Management Information System
IGAP	Improved Governance and Accountability Pact
IMF	International Monetary Fund
IMNCI	Integrated Management of Newborn and Childhood Illnesses
LLIN	Long Lasting Insecticide Nets
MCHA	Maternal and Child Health Aides
MCHP	Maternal and Child Health Post
MCHW	Maternal and Child Health Week

MDG	Millennium Development Goal
MDRI	Multilateral Debt Relief Initiative
MICS	Multi-Indicator Cluster Survey
MLM	Mid-Level Management
MNT	Maternal and Neonatal Tetanus
MRU	Mano River Union
MTEF	Medium Term Expenditure Framework
NCC	National Certification Committee
NEPAD	New Economic Partnership for African Development
NGO	Non- Governmental Organization
NPEC	National Polio Expert Committee
NUV	New and Underutilized Vaccines
NVS	New Vaccine Strategies
OPV	Oral Polio Vaccine
PCV	Pneumococcal Conjugate Vaccine
PEI	Polio Eradication Initiative
PETS	Public Expenditure Tracking Survey
PHC	Primary Health Care
PHL	Public Health Laboratory
PHU	Peripheral Health Unit
PIE	Post Introduction Evaluation
PRGF	Poverty Reduction Growth Facility
PRSP	Poverty Reduction Strategy Paper
RCH	Reproductive and Child Health
RED	Reach Every District
RI	Routine Immunization
SECHN	State Enrolled Community Health Nurse
SIA	Supplementary Immunization Activities
SMT	Stock Management Training
SWOT	Strengths, Weaknesses, Opportunities, Threats
TBA	Traditional Birth Attendants
TT	Tetanus Toxoid
UCI	Universal Child Immunization
UNICEF	United Nations International Children Educational Fund
VPD	Vaccine Preventable Diseases
WCBA	Women of Child Bearing Age
WHO	World Health Organization
YF	Yellow Fever

Rationale for Updating of the Comprehensive Multiyear Plan (cMYP)

The first edition of the cMYP was written in 2006 to guide immunisation service delivery from 2007-2011. This period coincides with the immediate post war era in Sierra Leone.
The original version of the cMYP for Sierra Leone is a programmatic perspective that is reflective of contextual realities and priorities of the period 2007-2011, 2012 – 2016 and 2017-2021 respectively. Since then, several changes have occurred such as: introduction of new vaccines, technological advancement, political and socio-economic development.

The health care delivery system in Sierra Leone has continued to evolve in response to contemporary demands of its growing population. The country has introduced the Free Health Care Initiative for pregnant women, lactating mothers and children under the age of five years.
All of these changes have come with implicit demands for the EPI programme. With these demands are the challenges of achieving the SDG 3 as well as contributing to the long term socio-economic development of the country.

The rational of the Comprehensive Multi Year Plan (cMYP) is to render the EPI programme more effective and efficient in contributing to the reduction of morbidity and mortality as well as the strengthening of the Primary Health Care (PHC) delivery system

1 BACKGROUND

1.1 Country Profile

The Republic of Sierra Leone is situated on the west coast of Africa, sharing borders with Guinea and Liberia. Its 400km coastline overlooks the North Atlantic Ocean and it has approximately 71,740 sq. km land area. The climate is tropical, with a hot, humid, rainy season from May to October and a dry season from November to April. The estimated population of Sierra Leone is 6.1 million people, of which 40% reside in urban areas[1]. The country is home to about 20 distinct language groups, reflecting a diversity of cultural traditions.

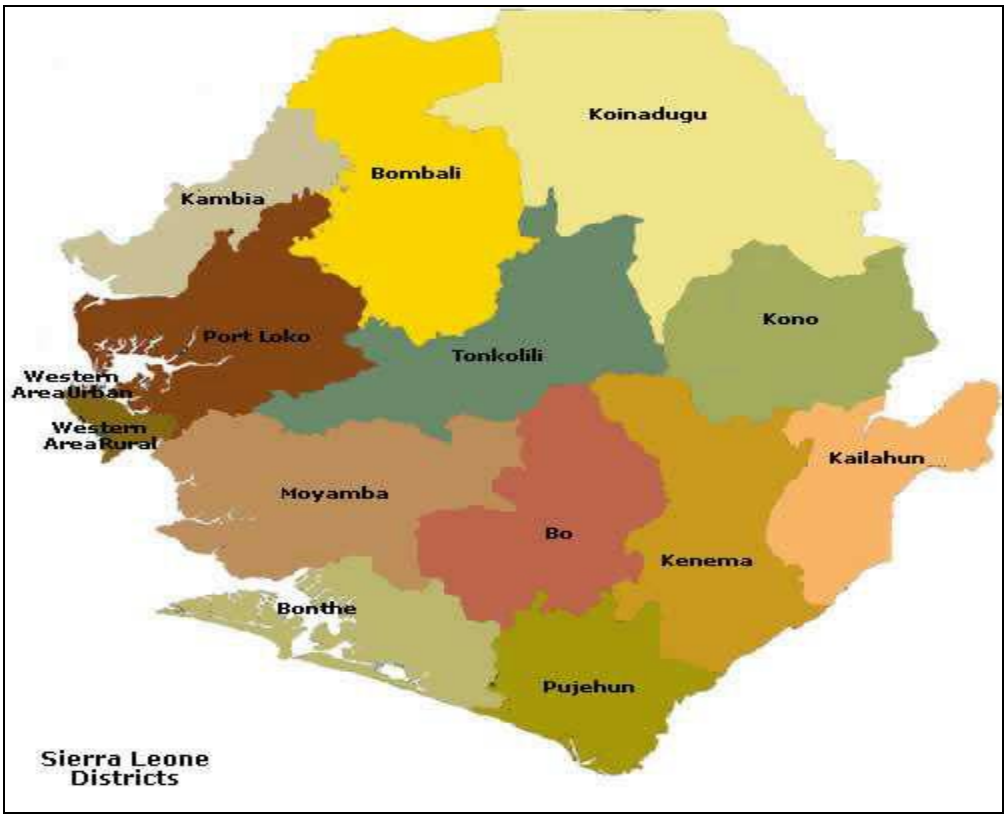
Administratively, the country is divided into four major areas, namely Northern, Southern, Eastern regions and the Western area where the capital Freetown is located. The regions are divided into 14 Districts and 149 chiefdoms. There are District Councils consisting of a district chairman, administrators and councillors who administer the districts; while the chiefdoms are governed by locally elected paramount chiefs. With recent decentralization, the country has been divided into 19 local councils that have been further sub-divided into 392 wards. Each ward is headed by an elected councillor.

Sierra Leone's protracted civil conflict, which ended in 2002, eroded vital infrastructure and human capacity. This has resulted in a range of social and economic challenges. The Gross National Income (GNI) per capita (current dollar, purchasing power parity (PPP)) is $1,690 while the GDP growth rate was 6% in 2013. Just 43% of the population older than 15 years are literate, and life expectancy at birth is just 45 years (World-Bank 2015). The Human Development Index rank for Sierra Leone is 177 out of 187 countries[2].

Total health expenditure is approximately $95 per capita – of which 13% comes from donors, 16% from government, and 76% from private out-of-pocket household contributions (Government-of-Sierra-Leone 2010; WHO 2014). Government expenditure on health as a percentage of total government expenditure is just 12.3%, approaching the 15% target of the Abuja Declaration[3]. Major external supporters of the health sector include The Global Fund to Fight AIDS, TB and Malaria (The Global Fund), the UK Government (UKAid), European Union (EU), African Development Bank (ADB), and GAVI[4].

Fig 1: Sierra Leone Districts

[1] World-Bank (2015). World Development Indicators, World Bank. http://databank.worldbank.org/data Accessed Feburary 6, 2015
[2] UNDP (2014). Human Development Report. New York, UNDP
[3] Ministry of Health and Sanitation (2015). National Health Accounts, 2015
[4] WHO (2014). "Sierra Leone Country Profile



1.2 Demography

Sierra Leone has a total population of 7,075, (Statistics Sierra Leone census data 2015).
This population consists of predominantly young children under the age of 15 years, who constitute approximately 44.5% of the total population. Children under the age of 5 years account for 17.7% of the population, while the proportions attributable to Women of Childbearing Age (15-49) and children less than one year of age are estimated at 22.2% and 4% respectively.

There are about 18 distinct language groups, which is reflective of its diversity of cultural traditions.

Settlement pattern: The population of Sierra Leone resides predominantly in rural settlements (63% - census 2015). The surge of rapid urbanization in the post war era has been greeted by socio-cultural and socio-economic challenges. The capital city, Freetown, is very cosmopolitan In general, settlement patterns vary from district to district based on topographical features and ethnic characteristics. For instance, fishing communities are normally located along coastal areas where as pastoralists are located in grassland vegetation belts.

1.3 Macro-economic Situation

According to the African Economic Outlook report in 2012, the Sierra Leone economy driven by the mining sector (particularly iron ore), real gross domestic product (GDP) growth accelerated from 6% in 2011 to 16.7% in 2012 as a consequence of iron ore production. It has also been supported by agriculture, services and an expansion in construction. GDP growth is projected to stabilise around 7.2% in 2013 before reaching 12.1% in 2014 as iron ore projects become fully operational.

This robust economic growth has been accompanied by a tight monetary policy that has reduced inflationary pressures. As a result, inflation has dropped from 18.5% in 2011 to 11.6 % in 2012 and is projected to return to a single-digit 7.1% in 2013 and 6.9% in 2014 as agricultural production recovers and international food prices fall, aided of course, by the tight monetary policy. Indeed, the government implemented several reforms to contain inflation and has taken appropriate monetary policy measures. Policies to strengthen fiscal discipline in 2012 have helped to reduce the fiscal deficit from 4.5% of GDP in 2011 to 1.8% in 2012, and is projected around 2.3% in 2013, and 2% in 2014. The current account deficit as a percentage of GDP has also been reduced from 52.3% in 2011 to 44.0 % in 2012 as a consequence of an expansion in the minerals and cash crop exports. It is projected to shrink to 11.6% in 2013 but to slightly increase to 12 % in 2014.

The restrictive fiscal and monetary policies contributed to a reduction in the government expenditure and thus the domestic debt burden. This has been supported by strong reforms aiming at fighting corruption, improving the ease of doing business in Sierra Leone and reducing poverty. The Poverty Reduction Strategy Paper (PRSP) II is being succeeded by a new strategy called Agenda for Prosperity 2013-17, which aims to scale up inclusive green economic growth, employment and value addition in various sectors and to accelerating progress towards the Sustainable Development Goals (SDGs).

Recent discoveries of iron ore mines and the expansion of the extractive sector in Sierra Leone have initiated a structural transformation of the economy with a shift of productivity from agriculture to mining and construction activities that are now the main driver of GDP. However, labour transfer to these sectors is still low due to the fact that extractive activities and construction are capital intensive. Under its new development strategy, Agenda for Prosperity 2013-17, the government plans to improve its management of natural resources and to enhance revenue collection.

1.4 Health Sector Status

Demographic and Health information: The country has poor health status due to high disease burden from mainly environmental related communicable diseases aggravated by poor nutrition. Malaria, Acute Respiratory Infection (ARI) and Diarrhoea are the top most causes of outpatient attendance. The nutritional status of the population is equally poor. The basic demographic health data, including vital statistics, are shown in Table 1 below. Remarkable improvement is expected in the years ahead as the country has moved into a development phase.

The Sierra Leone DHS (2013) estimates under-five and infant mortality rates at 156 and 92 per 1000 live births respectively. The immediate causes of childhood deaths are malaria, ARI,

diarrhoea and conditions of the newborn such as asphyxia, prematurity and sepsis. Underlying these deaths is the problem of malnutrition. Malaria tops the disease burden chart (25%), closely followed by acute respiratory infections (20%) and diarrhoea (19%), while malnutrition is an underlying cause for 46% of childhood deaths (Child Health Policy 2007).
Evidently, a heavy burden of disease is still exerted by Vaccine Preventable Diseases (VPDs), thus making a significant contribution to the overall infant and child mortality rates.
Fortunately, potent and effective vaccines to avert these diseases are currently available. Sierra Leone has already introduced the Pneumococcal Conjugate Vaccine (PCV-13) in 2011 and will be introducing Rotavirus Vaccine in 2014, as an accelerated strategy to achieve the SDG 3.

Table 1: Main demographic features and Health indices of Sierra Leone:

Indicator	**Latest Estimated Value (See sources*)**
Population: Total	**7,075,641 (2015 census population)***
Population: under one	**283,026 (4%)****
Population: under five years	**1,252,388 (17.7%)****
Population: pregnant women	**311,328 (4.4%)****
Population: Non-pregnant women	**1,259,464 (17.8%)****
Average annual growth rate	**2.0%****
Total fertility rate	**6.2 birth/woman****
Infant mortality rate	**92 /1,000 live births*****
Under five mortality	**156/1,000 live births*****
Maternal mortality rate	**1,165/100,000 live births*****

Underweight prevalence in U5 children	**31%******
Stunting prevalence U5 children	**40%******
Wasting prevalence in U5 children	**9%******
Vitamin A supplementation under five years	**49%******
Malaria treatment in U5 children	**83.5%*******
LLINs usage by U5 children	**69.2%*******
LLINs usage by pregnant women	**75.9%*******

Sources: *Statistics Sierra Leone 2015, **Statistics Sierra Leone 2008 National Census Proportions, ***Demographic Health Survey 2013 ****Multi Indicator Cluster Survey 4 (2010) *****Malaria Indicator Survey (2010)

1.5 Health Sector Organization

Health sector administration is primarily the responsibility of the Ministry of Health and Sanitation at the Central level and supported by the District Health Management Teams in the districts.

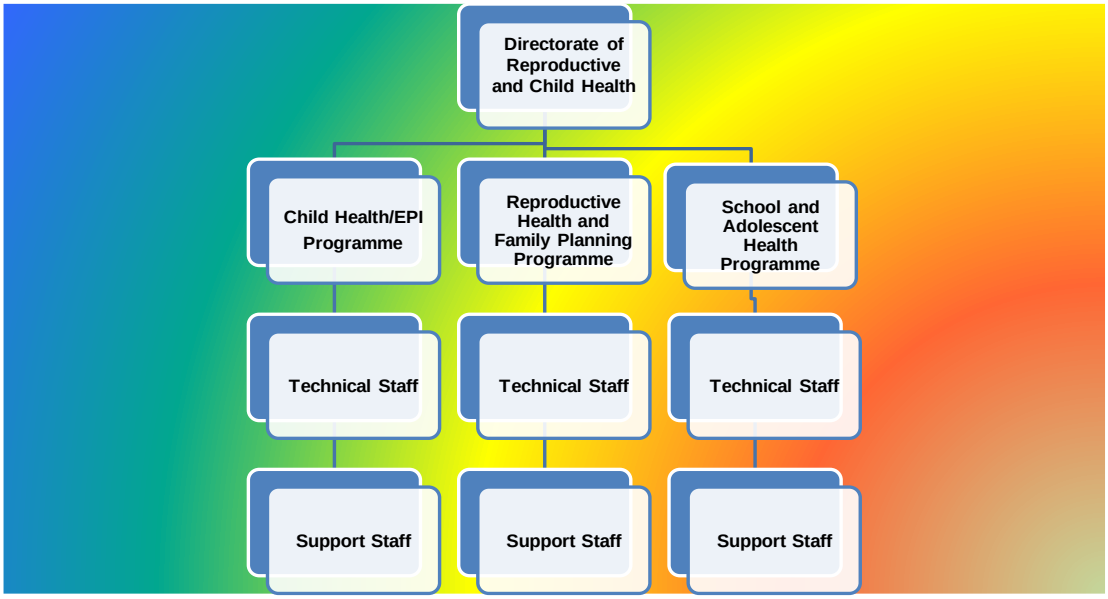
At central level, the Hon. Minister of Health and Sanitation is the overall political head of the Ministry, assisted by the Deputy Ministers.

At the national level, the Ministry of Health and Sanitation is divided into the Administrative and Technical wings. The Administrative wing is headed by the Permanent Secretary, whereas the Technical wing is headed by the Chief Medical Officer.

The Administrative wing deals essentially with national administrative matters in consultation with the Technical wing.

Under the Chief Medical Officer, there are 9 directorates, namely: Reproductive and Child Health (RCH), Primary Health Care, Planning, Policy and Information, Hospitals and Laboratory Services, Drugs and Medical Supplies, Disease Prevention and Control, Post Graduate and Research, Nursing Services and Nutrition are each headed by a Director. The Child Health/EPI programme is headed by a manager and is one of the three technical programmes constituting the RCH directorate as illustrated by the organogram below.

Fig 2: Organogram for the Directorate of the Reproductive and Child Health Programme



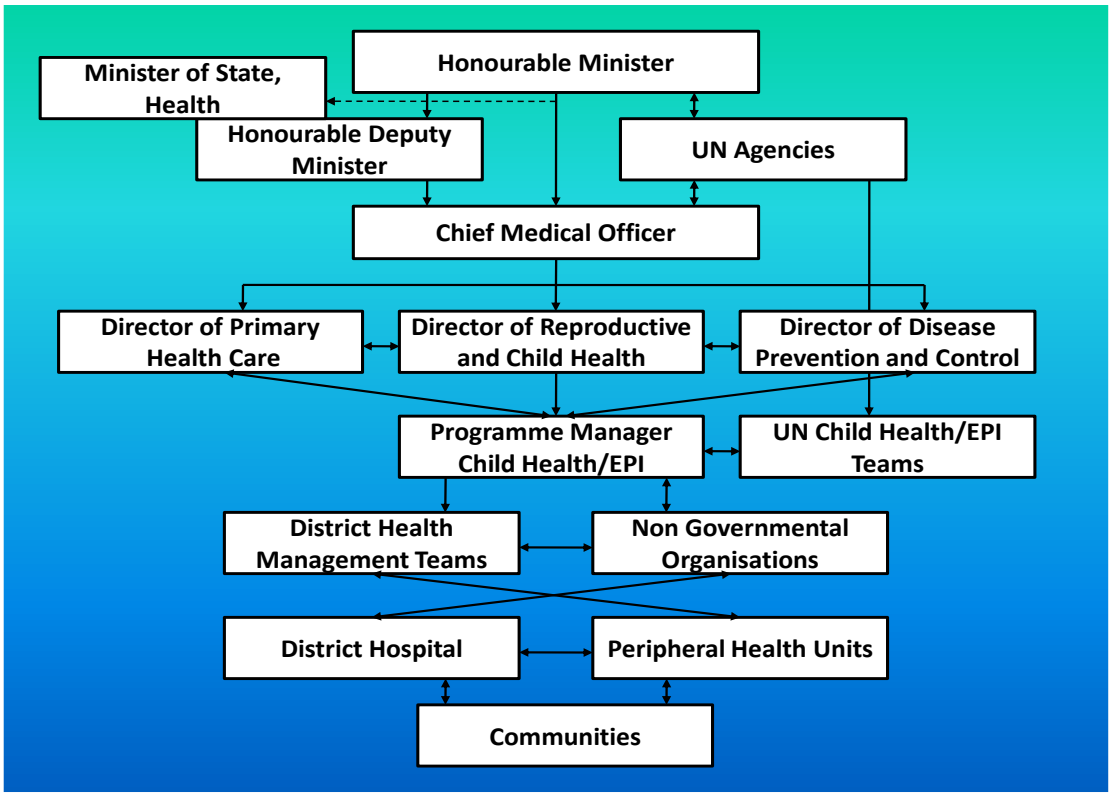
The Management Services which is the Administrative wing of the ministry has four units: Financial Resources, Internal Audit, Human Resources and Support Services. These are further sub-divided into smaller units overseen by managers.

The Directors and Managers under the Chief Medical Officer are responsible for the preparation and implementation of the central level technical and support programme activities.
At the District Level the District Health Management Team (DHMT) coordinates, oversees and supervises all Public Health Care activities delivered through the Health Care Delivery system. The team is headed by the District Medical Officer (DMO) who reports to the Director of PHC and to the Programme Manager for Child Health/EPI activities at central level. Within each district, there are Peripheral Health Unit (PHU) and a Government District Hospital. The DHMT is responsible for managing the implementation of District Health Plans. With the decentralization of health service delivery, the Local Councils now provide funding and other forms of support for Public Health activities at district level.
There are three types of PHUs based on the size of catchment population they serve and location. The highest of them is the Community Health Centre (CHC). The Head of the CHC is the Community Health Officer, supported by Community Health Assistant, State Enrolled Community Health Nurses (SECHN), Maternal and Child Health Aides (MCHA), Vaccinators, Porters, Cleaners and Watchmen. PHUs are directly responsible to the District Health Management Teams. PHUs provide child health/EPI Services at community level. They are the outlets at which vaccines and other child health/EPI supplies are utilized.

1.6 Programme Coordination

Programme coordination occurs at all levels of the entire health care delivery system. With the high intensity of activities and level of resources (human and financial) required to undertake the Polio Eradication Initiative (PEI), and other EPI activities, coordination of partners became essential. It was against this background that the Government through MoHS and partners established the Inter-Agency Coordinating Committee (ICC) for EPI.

Fig 3: Illustrative Diagram on Programme Coordination



- The single arrows represent line management control.
- The double arrows indicate collaboration among partners and stakeholders as applicable.
- The dotted lines express doubt as to whether this will continue permanently.

In 2008, considering the importance of Maternal and Child survival in the achievement of MDGs 4&5, the government of Sierra Leone has expanded the ICC into an all-encompassing ICC for RCH.

At the central level, there are well established mechanisms for programme coordination. These include:

Health Sector Coordination Committee (HSCC): The ICC is constituted by all major donor partners. This is the highest level of coordination for the Health Sector. The ultimate decision of health interventions are endorsed at this level. It is normally convened on a quarterly basis and is chaired by the Hon Minister of Health and Sanitation. This is also the level for serious resource mobilisation.

Interagency Coordination Committee (ICC): The ICC is constituted by all major stakeholders in health care delivery. At this level, technical and advisory discussions normally take place between the Minster, UN Agencies and Chief Medical Officer on a regular and ad hoc basis.
Technical Coordination Committee for RCH: RCH programme managers, counterparts from the UN agencies and NGOs active in RCH service delivery constitute the TCC/RCH.
Technical Coordination Committee for CH/EPI: The TCC-CH/EPI is constituted by the programme manager, technical programme staff and UN Child Health/EPI teams

The organogram above shows the level of line management control, coordination, collaboration and chain of communication involved in programme coordination. At national level the CH/ EPI Manager mainly reports to the Director of RCH. However, it is worth mentioning that the issues of Child Health/EPI transcend the borders of one Directorate. In the current set up of the MOHS, outbreak response is spear headed by the Directorate of Disease Prevention and Control. In the event of an outbreak due to VPDs, then the CH/EPI programme Manager collaborates with the Director of DPC to coordinate an appropriate outbreak response. Similarly, the programme manager may on occasions of district level interventions collaborate with the PHC Director.

At programme level, the programme Manager coordinates activities in collaboration with focal persons responsible for the three main components within the programme. The National MCH/Aide Training Coordinator, the IMNCI and EPI focal points implement all technical programmes. Furthermore, there are other staff members such the Monitoring and Evaluation officer, Finance/Administrator officers and support staff.
Also technical assistance is been provided by focal persons for CH/EPI from UNICEF and WHO which led to the formation of a Technical Coordinating Committee at programme level in collaboration with the Directorate of Disease Prevention and Control .

At the district level, health care delivery in generally coordinated by the DHMT headed by the DMO. The DHMT practically supervises all health facilities delivering immunization services within the jurisdiction of their geographical domains as well as existing non-governmental organizations providing CH/EPI services within the district.
At the health facility level, the in-charge coordinates the delivery of health care services. The in-charge at that level coordinates inputs and activities of all stakeholders towards the effective delivery of immunization services.

1.7 Health Sector Reform

The national health policy is based on the Primary Health Care concept. Following the implementation of several pilot primary health care initiatives, including the Bamako Initiative, a broad based health sector policy was developed in 1993 and revised in 2002. The policy has Primary Health Care as the main thrust, five (5) objectives, nine (9) key components and ten (10) priority areas.
The implementation of the policy is facilitated by technical policies, ten (10) of which, including immunization policy, have been completed and are in use.
These policies reflect adequately on the government's PRSP document, and international and regional initiatives such as the Millennium Development Goals, Roll Back Malaria, CRC, CEDAW, Cairo Declaration, the Beijing Platform of Action, and NEPAD health objectives.

Sierra Leone has now decentralised the health care delivery system to local councils in the respective districts. The main objective of decentralization was to improve efficiency, effectiveness and accessibility to quality health care delivery services,
This reform process aims at enhancing local control and utilization of health care services. Already all PHU services have been decentralized and hospital services were decentralized in 2008.
The introduction of the Free Health Care Initiative (FHCI) has practically removed the principal barrier of cost to accessing health care delivery services, including immunisation. With the introduction of the Free Health Care Initiative the volume of services delivered to children, pregnant women and lactating mothers has further increased.

1.8 Organization of the Sierra Leone's health system

The basic organization of the health system is reviewed in other key government documents[5]. Briefly, the core functions of the Ministry of Health and Sanitation at the **central level** are policy formulation; standards setting and quality assurance; resource mobilization; capacity development and technical support; provision of nationally coordinated services; coordination of health services; monitoring and evaluation of the overall sector performance and trainings. The responsibilities of **District Health Management Teams** (DHMT) are to implement national health policies and manage health service delivery.

Sierra Leone's health system is comprised of public services, private services that operate on either profit or non-profit basis (e.g., non-governmental organizations (NGOs), including those that are faith-based) and traditional health care. Government run public services account for approximately 80% of health service utilization.

The country is served by a network of 1,264 public and private health facilities, including 40 hospitals. The health system is organized into three tiers of care: Peripheral Health Units (PHU) with the extended Community Health Worker (CHW) programme; District Hospitals; and Referral Hospitals. There are a total of 40 hospitals in the country, of which 23 are government owned with the rest owned by private, non-governmental and faith based organizations. Making districts functional and resilient requires a BPEHS that ensures continuum of care for delivery of quality of services – with smooth referral from PHUs to hospitals as needed.

The **Community Health Workers** programme was solidified by the development of a national community health worker policy in 2012. At the time of developing the recovery plan, there was nearly 13,000 CHWs trained and supported by local NGOs[6]. CHWs operate at the community level and provide a range of services including integrated community case management (iCCM), growth monitoring and nutritional counselling, on family planning and distribution of family planning commodities, and other non-clinical services in the country.

First line PHUs are further sub-classified into three levels:

Maternal and Child Health Posts (MCHPs) are situated at village level for populations of less than 5,000. They are staffed by maternal and child health (MCH) Aides who are trained to provide: antenatal

[5] Ministry-of-Health-and-Sanitation (2012). DHIS Data quality assessment.

[6] Ministry-of-Health-and-Sanitation (2012). Policy for community health workers in Sierra Leone

care, supervised deliveries, postnatal care, family planning, growth monitoring and promotion for under-five children, immunisation, health education, management of minor ailments, and referral of cases to the next level. The MCH Aides are supported by a network of volunteer community health workers (CHWs). The updated Basic Package of Essential Health Services (2015) prioritizes improving the quality of health care delivery with special emphasis on high impact maternal and child health interventions and observance of universal precautions.

Community Health Posts (CHPs) are at small town level with populations of between 5,000 and 10,000 and are staffed by State Enrolled Community Health Nurses (SECHNs)/Midwife and MCH Aides. They provide the same types of services that are provided at the MCHPs but they also include prevention and control of communicable diseases and rehabilitation. They refer more complicated cases to the next level of health care, the Community Health Centres.

Community Health Centres (CHCs) are located at Chiefdom level, usually covering a population ranging from 10,000 to 20,000 and staffed with a Community Health Officer (CHO), SECHN, MCH Aides, an Epidemiological Disease Control Assistant and an Environmental Health Assistant. They provide all the services provided at the CHP level in addition to environmental sanitation and supervise the CHPs and MCHPs within the Chiefdom. At the time of the health sector recovery planning, five CHCs in each district were being upgraded to BEmONC certification.

1.9 Health Financing Reforms

Ministry of Health and Sanitation appreciates the importance and need for a stringent financial reform within the health sector, to ensure that what is allocated is accessed, and spent in an efficient, timely and cost-effective manner. Steps have also been taken at the central level to develop proper financial management, accounting and procurement systems. The creation of the Financial Management Team at the Ministry to monitor all resource allocation and expenditure is proof of the Ministry's commitment to managing its financial resources properly.

Funds are accessed from the Ministry through a budgetary work plan submitted by programmes and the districts. For the purpose of decentralization, funds are directly remitted to district accounts so as to decentralize programme decision-making and operations at district and peripheral levels. Funds remitted to each programme or district should be liquidated fully and accompanied by a written financial and technical report on all activities conducted using the allocated funds.

The Sierra Leone Poverty Reduction Strategy is clear that redressing the inequities between Freetown and the rest of the country are central to the maintenance of peace. This perspective drives Government policy in many respects, notably through an increased focus on decentralization. Following election of local councils in 2004, the Government designed and implemented formula-based grants to local councils based on the principle of equity.

Local councils finance recurrent expenditures related to primary health, schools, solid waste management, and capital expenditures according to objective indicators of needs for services. Funds are directly disbursed to local council accounts, thus eliminating leakages that had been occurring between the central government and district levels. The transition to equalization grants and the direct transfer mechanism favour rural districts and hence improve the pro-poor orientation of public spending. Sierra Leone is also a Highly Indebted Poor Country Initiative

beneficiary and is therefore obligated to use interim debt relief for increased spending on poverty reduction programs, including those in the health sector.

The Ministry of Finance allocates funds for the day-to-day functioning of the government. At the end of every fiscal year, Ministry of Finance and Economic Development (MOFED) requests budget estimates from all Ministries of Government for the following fiscal year. The estimates are tailored based on the ceiling available for each Ministry. After the annual allocation of funds to all Ministries, funds are then disbursed to programmes on a quarterly basis using the Medium Term Expenditure Framework (MTEF) forms designed by the Ministry of Finance. All funds remitted to programmes must be utilised and accounted for (liquidated) before any other allocation is made.

Funding for EPI specifically is borne mainly by donor agencies particularly GAVI, UNICEF and WHO which provides 80% of the total EPI operations budget in the form of procurement of vaccines, cold chain equipment, logistics, capacity building and technical support, Immunization Services Strengthening (ISS), Health Systems Strengthening (HSS) and other operations. GAVI has now closed the ISS window but there are in built mechanisms for continuing support.

The Ministry of Health and Sanitation provides the staff, structures and salaries for all child health/EPI workers; procures injection safety materials for immunization through UNICEF and co-finances new vaccines. At the district level, the Non-Governmental Organizations (MSF Belgium, Sierra Leone Red Cross, Christian Children's Fund, Save the Children, and World Vision) provide some assistance.

Through high level advocacy orchestrated by the good collaboration between the Child Health/EPI programme, Sabin Vaccine Institute and Parliamentary Committee on Health, there is presently an increasing government ownership and leadership of the immunisation programme. A budget line has been created for EPI and the Government of Sierra Leone remains committed to co-funding for new vaccines.

Sustainable Immunisation Financing (SIF) is a critical aspect of ensuring the constancy of immunisation service delivery. As the worldwide debate on increasing advocacy for SIF gains momentum, Sierra Leone is building on the foundation of the Financial Sustainability Plan (FSP) to launch an aggressive resource mobilisation advocacy.

1.10 Agenda for Prosperity (2013 – 2018)

The Agenda for Prosperity (A4P)[7], Sierra Leone's third generation poverty reduction strategy paper was developed following an expiration of the Agenda for Change in 2012[8]. This follow on strategy recognized that investing in the health of poor Sierra Leoneans, particularly women and children, is a necessary investment in economic and social growth and contributes to the development of Sierra Leone. A4P prioritized strengthening health programmes, introducing new policies and services that will ensure better health outcomes for Sierra Leoneans. In the short term, A4P promised among others, provision of free preventive health services at points of delivery, universal access to family planning and free health care for vulnerable groups. The vision and objectives articulated in the health sector recovery plan are framed around, and aims to deliver on the promise of, the Agenda for Prosperity.

1.11 The Basic Package of Essential Health Services (BPEHS, 2010)

[7] Government of Sierra Leone (2013). The Agenda for Prosperity – Road to middle income status. Sierra Leone's third generation poverty reduction strategy paper (2013 – 2018)

[8] Government of Sierra Leone (2008). Agenda for Change (2008 – 2012)

The BPEHS 2010 specifies a prioritized but limited package of high-impact and cost-effective interventions that should be available to every individual to address the major causes of death and diseases in Sierra Leone.

The BPEHS is a critical starting point for this Health Sector Recovery Plan. The BPEHS defines the package of services that should be available at each level of care, and implies that a minimum set of skilled health staff, essential drugs and supplies, and related technical and management competencies will also be present. Finally, it is presented in such a way that costs can be estimated to provide an envelope of required financial resources for service provision.

During the process of developing the Health Sector Recovery Plan, technical working groups from the MoHS and partners engaged in a detailed consultation to update the BPEHS. The revisions take stock of pre-Ebola implementation gaps, lessons learned from the epidemic, as well as a wider vision for rebuilding resilience in the sector. This sharpened and revised BPEHS forms the basis of the costing estimates for the Plan moving forward and subsequent implementation.

1.12 National Health Sector Strategic Plan (NHSSP 2010-2015)

The NHSSP 2010 – 2015 is the current high-level planning document for the health sector. It aims at improving the health of the population in Sierra Leone with special focus on the needs of mothers, children and the poor. Its goal is to reduce inequalities and improve the health status of the people, especially mothers and children, through strengthening the national health system.

The NHSSP articulates detailed objectives around the six WHO health system building blocks namely: leadership and governance; service delivery; human re-sources for health; medical products and health technologies; healthcare financing; and health information systems.

The general objective of the NHSSP is to strengthen the functions of the national health system of Sierra Leone so as to improve the following performance criteria:

- Access to health services (improving availability, utilization and timeliness)
- Quality of health services (improving safety, efficacy and integration)
- Equity in health services (with focus on disadvantaged groups)
- Efficiency of service delivery (enhancing value for resources, inclusiveness and strengthening partnerships)

The Health Sector Recovery Plan will build on the priorities articulated in the NHSSP, including incorporating lessons learned through the Ebola response. MoHS intends to embark on its second NHSSP (2016 – 2020) building on the Health Sector Recovery Plan subsequently.

1.13 Free Health Care Initiative (FHCI, 2010)

This initiative was introduced in the first year of the National Health Sector Strategic Plan (2010 – 2015) to ensure free preventive and curative health services for pregnant women, lactating mothers and children under five years of age in any Government facility in Sierra Leone as a first step toward universal health coverage attainment. It also augments the support of donors such as the Global Fund in providing malaria testing and treatment services free to the entire population. It recognized that the majority of health care

costs in Sierra Leone are borne by households and patients (Government-of-Sierra-Leone 2010). The benefits after implementation were direct and immediate, with major gains in utilization and coverage with basic services including immunization, antenatal care and facility delivery (Ministry-of-Health-and-Sanitation 2011; Diaz, George et al. 2013). However, critical shortages in human resources and drug supply, which characterize many Government health facilities, have made it difficult for the health system to meet the increased demand for services generated by the FHCI. In practice, many women and girls attending health facilities still lack access to drugs and care when they are pregnant (Amnesty-International 2011).

This FHCI and measures to improve its implementation will continue to underpin the Health Sector Recovery Plan. There is a need to continue strengthening existing policies to address non-financial barriers to access. There is also a need to provide health financing alternatives to out-of-pocket expenditures to include a larger proportion of the population. The 2013 National Health Accounts (NHA) still shows a large burden on families to carry the cost of health care, recorded at nearly 60%[9].

1.14 Joint Program of Work and Funding (JPWF, 2012-2014)

This was developed to operationalize the NHSSP (2010 – 2015) and it was a multi-year framework that aligns interventions to key sector priorities, as well as planning, monitoring and budgeting processes. It is a Medium-Term Expenditure Framework intended to provide a basis for harmonization of work plans and alignment of stakeholder activities to Government priorities. The JPWF was costed at US$473m (average per capita US$25.50 per year). The Government of Sierra Leone committed to contribute 27% of the total cost, and requested financial support from development partners to fill the remaining gap.

A review of the JPWF at the end of 2014 showed that only 5% of the plan had been fully implemented in the intended timeframe, while another 25% of the plan had been partially implemented but not completed. It was the first time that the JPWF was reviewed and the lack of monitoring of its implementation has been noted for improvement in future plans.

1.15 National Health Compact (2011)

In line with the International Health Partnerships+ principles[10], the National Health Compact is a framework outlining roles and responsibilities of the Government of Sierra Leone and its partners regarding implementation of the NHSSP (2010 – 2015), JPWF (2012 – 2014) and BPEHS (2010). The compact outlines the rules of engagement for partners who want to contribute to the health sector. It affirms national ownership of the health sector strategy and implementation; states that development partners will support planning and implementation (particularly financing and work plans) in alignment with and under the leadership and governance of the Government of Sierra Leone. All stakeholders wishing to work in the health sector are expected to agree to the compact to ensure productive working relationships and effective coordination and governance of the health sector. This agreement has further implications for issues around procurement and supply chain management, supervision, monitoring and evaluation, health financing and financial management, as well as human resources. The compact was signed by the representatives of major donor Governments including letters of support by the Global Fund

[9] Ministry of Health and Sanitation (2015). National Health Accounts, 2015
[10] http://www.internationalhealthpartnership.net/en/. Accessed on 11 May 2015

and JICA, the Country Representatives of all UN agencies supporting the health sector, a representative of faith-based groups, a representative of NGOs, and a representative of civil society.

Implementation of the health compact is not systematically monitored, in particular, to gauge whether or not the Government and the development partners stay true to their commitments and the principles contained in the IHP+, the basis for the health compact. There are plans to improve monitoring of the implementation of the health compact in future.

Health policies, programmes and coordinating structures, such as the Health Sector Coordinating Committee (HSCC), chaired by the Minister of Health and Sanitation with membership from Government and development partners – play an important role in galvanizing cooperation among health and development partners in the country. The HSCC is supported by the Health Sector Steering Group, the technical body that perform analytical work and present policy and strategic documents to HSCC for endorsement.

1.16 Results and Accountability Framework 2010-2015 (2011)

The Results and Accountability Framework articulates the monitoring and evaluation requirements to support health services management and how to engage stakeholders in understanding progress in health programme implementation, and using information for evidence-based decision making. The Framework is organized around the same six pillars as the NHSSP (2010 – 2015): governance, service delivery, human resources, health care financing, medical products and technologies, and health information.

A set of indicators with clear targets have been defined for inputs, outputs, outcomes and impacts within the different pillars drawing from a range of existing data sources: Health Management Information Systems (HMIS), heath facility surveys, population-based surveys, Logistics Management Information Systems (LMIS), National Health Accounts, Human Resource Management Information System (HRMIS), Civil Registration, and Human Resource Information Systems (HRIS). The Framework will be revised to incorporate the Health Sector Recovery Plan and subsequently the second National Health Sector Strategic Plan (2016 – 2020).

1.17 Status of the health sector prior to EVD outbreak

In May 2014, Sierra Leone experienced its first cases of Ebola Virus Disease (EVD) in the remote eastern part of the country at its intersection with Guinea and Liberia (Dixon and Schafer 2014). The outbreak quickly progressed from a localized to a generalized epidemic, shifting from the sparsely populated east to more densely-settled urban and peri-urban areas in the West. By March 2015, more than 8,400 confirmed cases and 3,600 deaths had been recorded, making Sierra Leone the worst affected country in West Africa and the world[11]. The impact of the epidemic at the macro level is yet to be determined. In providing a snapshot of the situation, the situation of the health sector before the Ebola outbreak is presented, followed by the impact of EVD outbreak on the health system, in particular the impact on health service coverage.

[11] Ministry-of-Health-Sierra-Leone (2015). Ebola Virus Disease - Situation Report: Summary of Laboratory Results- 31 January 2015. Freetown. http://health.gov.sl/?p=537.

Prior to Ebola, the country had made substantial progress towards a number of the Millennium Development Goal (MDG) targets related to health. Based on the results of the preceding two Demographic and Health Surveys (DHS 2008, 2013) there has been notable coverage gains in access to essential services – including modern contraception (7% to 16%), skilled birth attendance (42% to 62%), malaria bednet utilization (26% to 49%), malaria treatment (6% to 77%), diarrhea management (68% to 88%) and basic immunization (DPT3 54% to 78%)[12],[13].

The recent National Nutrition Survey (2014) also demonstrated that there had been a steady progress towards reducing undernutrition. Between 2008 and 2014, levels of stunting among children under five have been reduced from 37% to 29%, and wasting from 10% to 5% (UNICEF-Irish-Aid-and-Ministry-of-Health-and-Sanitation 2014). The national nutrition program in Sierra Leone, through the MoHS Food and Nutrition Directorate and with the support of partners, has worked extensively to improve infant and young child feeding practices (IYCF). Virtually all babies born in the country are breastfed, with the median duration for all breastfeeding at 19.8 months. However, the median duration of ***exclusive*** breastfeeding is only 0.6 months. Levels of anemia are high (79.9%), and only half of children regularly consume foods rich in Vitamin A[14].

Despite encouraging gains, levels of child and maternal mortality remained intractably high - 156/1000 and 1,165/100,000 respectively[15]. These reflect a range of critical implementation challenges. Sierra Leone faces a critical shortage of health workers. The WHO has determined a critical threshold of 23 doctors, nurses, and midwives per 10,000 population for the health workforce to be able to provide the minimal levels of basic skilled care for pregnant women and children. Countries that fall below this threshold will struggle to provide the skilled services required to improve the status of maternal and child health, and are likely to suffer higher levels of maternal and child mortality. As of 2010, Sierra Leone had only 2 skilled providers per 10,000 population, and the country ranked fourth from the bottom of a list of 49 priority low-and-middle-income countries for health worker-to-population ratios. Based on the recent Human Resources for Health Strategic Plan, 64% of skilled health worker posts are currently vacant.

The availability of funds remains a major challenge to filling vacancies, with large numbers of recent graduates staffing health facilities in a voluntary capacity[16]. To address urgent shortages, a national community health worker policy was established in 2012, with nearly 13,000 CHWs trained and supported by local and international NGOs to provide a range of services including integrated community case management (iCCM), growth monitoring and nutritional counselling, on family planning and distribution of family planning commodities, and other non-clinical services in the country. However, these staff operates on a volunteer basis and is not formally part of the health sector human resource establishment - an issue that will need to be taken into consideration.

The distribution and skill sets of health professionals were far from being adequate. Presently, 50% of all health professionals are concentrated in the country's capital of Freetown, serving just 16% of the

[12] Measure-DHS-and-Statistics-Sierra-Leone (2008). Sierra Leone Demographic and Health Survey.
[13] Measure-DHS-and-Statistics-Sierra-Leone (2013). Sierra Leone Demographic and Health Survey .
[14] Measure-DHS-and-Statistics-Sierra-Leone (2013). Sierra Leone Demographic and Health Survey.
[15] Measure-DHS-and-Statistics-Sierra-Leone (2013). Sierra Leone Demographic and Health Survey.

[16] Ministry-of-Health-and-Sanitation (2012). Joint Programme of Work and Funding 2012-2014. National Health Sector Strategic Plan 2010-2015, Government of Sierra Leone

population. There are only one hundred and eighty five (185) doctors in-post in the entire country (Ministry-of-Health-and-Sanitation 2012). No post-graduate training program exists for medical practitioners, thus graduates who want to specialize are forced to leave the country to pursue further education, and many never return. The health workforce is currently dominated by auxiliary level workers – MCH Aides and CHOs. While development of these cadres has gone a long way towards improving basic primary care at community and PHUs, there remains a critical need to deploy skilled manpower to attain MDGs and build a resilient system. There is also limited structured in-service training and no continuing professional development program for health care workers at all levels.

Optimizing quality of care remained a persistent challenge. While 90% of health facilities provide MCH services, the quality of these services remains sub-optimal. Only 1% of health facilities had basic amenities[17], including standard measures for ensuring patient safety[18]. Just 35% of facilities had basic equipment required for service delivery. [19] Despite a recent effort to strengthen 13 hospitals and 65 CHCs nationwide and upgrade them to EmONC status, an assessment conducted in July 2014 suggested *not a single facility* had been sufficiently upgraded to meet standards across the seven domains assessed – with a lack of necessary equipment, staffing, supplies, water and sanitation noted as frequent obstacles[20].

The ability of the health information system to inform decision-making was also faced with a range of challenges[21],[22]. Although districts collect data from health facilities monthly on services provided and utilization of drugs and supplies, the timeliness and completeness of these reports is variable. When district reports are submitted to the central level, they are not consistently entered into the national database, and the MoHS often struggles to provide relevant national- or district-level data on demand. Finally, data from hospitals are not yet captured in the system.

Prior to the EVD epidemic, laboratory infrastructure and capacity was largely inadequate, making a limited contribution to diagnosis and patient management, disease surveillance, or outbreak investigation. Appropriate equipment and supplies were general lacking, and bio-safety and bio-security practices virtually non-existent, thereby presenting a serious risk to the staff and the environment. Only one adequately equipped laboratory was available in the country. This number has increased during the current Ebola outbreak, but sustainability of the additional laboratories remains to be seen[23]. At the peripheral level, while 94% of facilities can diagnose malaria, only half have HIV diagnostic capacity and one third can conduct a urine test to confirm pregnancy.

Finally, despite efforts under the Free Health Care Initiative, essential medicines remained scarce, particularly at PHUs. Stock-outs of essential medicines occur far too frequently. A recent survey noted an average of just 28% of 14 tracer medicines[24] were available at the time of assessment, with just 1% of facilities having the full list in stock. When limited to the availability of the five national priority medicines, only 17% had all in stock with average availability of 71%[25]. Supply chain management is

[17] Sanitation facilities, Emergency transport, Consultation room, Improved water supply, Communication, Power supply and internet connection
[18] WHO (2012). Service Availability and Readiness Assessment: Sierra Leone, WHO
[19] Thermometer, stethoscope, adult and child scales, BP apparatus and light source
[20] Ministry of Health and Sanitation (2014). Facility-Improvement-Team-and-QulCFIT-Assessment-Report (2014). Summary of Health Facility EmONC Readiness July 14
[21] Ministry-of-Health-and-Sanitation (2011). Free Health Care Initiative Report: April 2010-March 2011. 2
[22] Ministry-of-Health-and-Sanitation (2012). DHIS Data quality assessment
[23] Ministry-of-Health-and-Sanitation (2011). National Laboratory Strategic Plan 2011-2015. Sierra Leone
[24] Amitriptyline, amoxicillin, atenolol, captopril, ceftriaxone injection, ciprofloxacin, co-trimoxazole suspension, diazepam, diclofenac, glibenclamide, omeprazole, paracetamol suspension, salbutamol inhaler and simvastatin
[25] WHO (2012). Service Availability and Readiness Assessment: Sierra Leone, WHO

based on a 'push' system in which the quantities of drugs and supplies provided to facilities is determined based on population-level disease burden projections and past health information system data (the quality of which is largely questionable).

A more effective supply chain management system would be a 'pull' system in which facilities report regularly on their usage and stock levels, and a threshold minimum stock level triggers a resupply as needed, before stock-outs occur. However the reporting and documentation system currently in use in the country is not sufficient to support this transition. A National Pharmaceuticals Procurement Unit (NPPU) was established with a wide procurement and supply chain strengthening mandate. However, the unit has faced challenges in starting up, including donors being unwilling to commit funds to an unproven system, and the recruitment of skilled personnel. Due to these constraints, the unit has been temporarily suspended until appropriate and adequate funding and personnel can be identified, thus it is not currently operating.

In summary, the health sector of Sierra Leone should be viewed within the broad historical, socio-economic and geo-political context of high rates of poverty and illiteracy; a country still in the process of recovery from crises including the civil war (1990-2002); the cholera epidemic (2012); and currently the EVD outbreak (2014-present).

1.18 Impact of Ebola on the health sector

Sierra Leone epidemiological reports show that the number of EVD cases and widespread distribution across all 14 districts from May 2014 onwards was unprecedented – outpacing morbidity and mortality figures of neighbouring Guinea and Liberia. By March 2015, the country had witnessed 8,300 confirmed cases and 3,180 deaths[26]. Evidence shows that lack of infection prevention and control measures contributed to the rapid spread of Ebola. The health and sanitation sector experienced a range of direct and indirect effects as a result of the epidemic, with the potential to reverse recent progress towards the MDG targets. These are summarized below.

Human assets: Health workers responding to the Ebola crisis were uniquely affected by the epidemic given their high risk of exposure and infection through routine service delivery. By January 2015, a total of 296 health care workers are known to have been infected with EVD with 221 deaths, including 11 specialized physicians[27]. This critical loss of front-line health workers has exacerbated already inadequate human resources for health. Improving the number and capacity of the skilled health workforce is a central priority for the post-Ebola recovery period.

To fill the gap, many international health workers have rotated through the Ebola Treatment Units (ETUs), sponsored by a variety of international NGOs and donor governments. This infusion of human resources has been crucial in turning the tide of the outbreak. As this temporary assistance expires, the government of Sierra Leone will work to secure short- to medium-term extensions of the international support while the national human resource capacity is strengthened as a longer term strategy.

Service delivery*:* Since the EVD outbreak, a survey conducted in October 2014 among 1,185 PHUs in Sierra Leone, noted that 47 (4%) were closed at the time of assessment, with a similar number reporting

[26] WHO (2015). Ebola Situation Report March 04, 2015. Geneva, WHO. http://www.who.int/csr/disease/ebola/situation-reports/en/; Accessed 11 May, 2015
[27] WHO (2015). http://apps.who.int/ebola/en/status-outbreak/situation-reports/ebola-situation-report-7-january-2015. Accessed 11 May 2015

temporary closure since the start of the epidemic[28]. Although 96% of PHUs remain operational, the country recorded a 23% drop in institutional deliveries; 39% drop in children treated for malaria; and 21% drop in children receiving basic immunization (penta3). The EVD outbreak has led to a decline in the utilization of health care facilities for non-Ebola related health needs, particularly in urban areas such as Freetown with a much lower proportion of women reporting pregnancy-related care and as much as a 90% drop in family planning visits[29]. The decline in utilization of health services is due to a number of factors such as: the absence of trusted health staff; loss of confidence by communities in the health system (as non-Ebola cases would mingle with Ebola cases); and safety-related reasons. While the outbreak continues and services remain constrained, there is a high risk of concurrent health vulnerabilities including possible outbreaks of vaccine preventable diseases (particularly measles), a surge in malaria cases and deaths, acute malnutrition, and maternal-newborn deaths due to home deliveries.

Infrastructure, supplies and equipment: The EVD outbreak has facilitated a swift influx of infrastructure construction projects. With support from the British government, 11 new hospitals have been constructed with a combined total of over 700 additional treatment beds. Four new reference laboratories have also been established with high-level diagnostic capacity. As the epidemic recedes, there is a danger that these new assets will be lost. Large quantities of highly skilled staff have been brought in to run these facilities during the outbreak; most of these will leave as the need diminishes, and sustainability of supplies and resources for the facilities and labs to remain functional is not assured.

Governance: Following the WHO's declaration of the EVD outbreak as a public health emergency of international concern and the subsequent declaration of a state of emergency by the President - His Excellency Dr Ernest Bai Koroma, the country's priorities shifted to focus on the Ebola response. Initially overseen by the MoHS, the Ebola outbreak resulted in: (1) reassignment of essential health program management staff to help control the outbreak; (2) suspension of routine health management and coordination meetings. Both policy actions diverted usual critical strategic direction and implementation guidance from routine services to EVD outbreak management. The consequence has been delayed implementation of key health programs. This increased engagement of the country's leadership and redeployment of key staff to support the Ebola response potentially contributed to management gaps that adversely affected the delivery of routine services in the health and sanitation sector.

1.19 Routine Immunization

The Expanded Programme on Immunisation aims at reducing infant and child death and disability by preventing children from being infected with the ten major childhood vaccine preventable diseases - Tuberculosis, Pertussis, Tetanus, Diphtheria, Poliomyelitis, Measles, Yellow Fever, Hepatitis B, Haemophilus influenza, Pneumococcal pneumonia and Diarrhoea diseases. The Programme also forms a solid base for the delivery of other high impact, evidence based and cost effective interventions such as de-worming, LLINS, vitamin A and the promotion of Health Education messages.

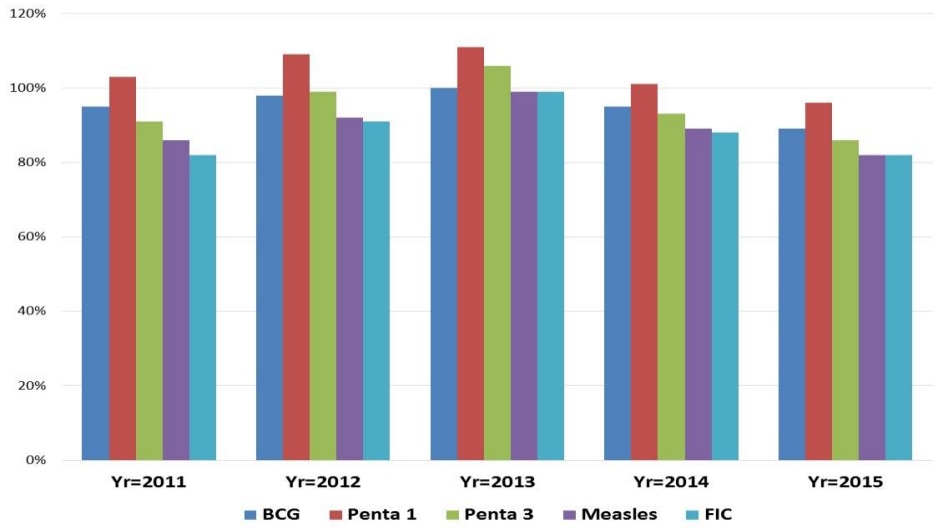
The current target population for the EPI services in Sierra Leone includes all children under the age of one year and women of childbearing age (15-49 years).
The delivery of immunisation services and other interventions through the static strategy alone has not been effective in achieving the required coverage. The present resolve of the Ministry of

[28] UNICEF (2014). Sierra Leone Health Facility Survey: Assessing the impact of the EVD outbreak on health systems in Sierra Leone.
[29] Government-of-Sierra-Leone (2014). The economic and social impacts of ebola virus disease in Sierra Leone: joint preliminary assessment report

Health and Sanitation is to take services to the doorstep of individuals and families in the community by implementing the Reaching Every District (RED) Strategy.

In 2002 The EPI Programme received support from the Global Alliance for Vaccine and Immunisation (GAVI) for strengthening of immunisation services. Thereafter support has been received for introduction of Yellow Fever vaccine (2002), pentavalent vaccine (2007) and Pneumococcal Vaccine (2011), Rota in 2014 and Measles Second Dose (MSD) in 2015.The GAVI support has facilitated an increase in immunisation coverage rate through strengthening of the cold chain system and payment of outreach allowances. Solar powered cold chain equipment are presently functional in about 80% of health facilities countrywide (EVM 2016).
In 2004, Sierra Leone re-launched the immunization programme and in 2006 a National EPI comprehensive Multi Year Plan (cMYP) was developed for the period 2007-2011, within the framework of the Global Immunization Vision and Strategy GIVS. Over the past few years, there has been an improvement in routine immunization from 87% in 2008 for Penta3 to 99 % for the same antigen in 2012. (See fig 4 below). .

Fig 4: Five years trend for key EPI antigen - (2011 to 2015)



The national immunization cluster coverage conducted in December 2013 revealed the following for card and history: BCG 99.4%, Polio 3 92%, Pentavalent 3 92% Measles 84.4% andYellow fever 84.1% The drop-out-rate between penta 1 and penta 3 is 7.7% and between penta 1 and measles is 17.6%
Although routine immunization for Sierra Leone was not up to 100 percent coverage in all the vaccines administered further strategies to close the gap was addressed during Mass campaigns targeting all the children 0 to 5 years of age. However, the main providers for routine immunization were the government health centres and hospitals.

1.20 Accelerated Child Survival and Development
The goal of the health sector is to identify, adopt and implement high impact, evidence based and cost effective interventions is to reduce high morbidity and mortality indicators. Immunisation

has been identified as one of the best health investments relevant to the achievement of the SDG 3 as well as the socio-economic development of the country

There are various opportunities to improve the immunisation coverage through strategic initiatives. These initiatives include:

- Free Health Care
- Maternal and Child Health Week
- National Immunisation Days

Table 2: Summary of Strategies/Initiatives for improving Immunisation Coverage

No	Strategy/Initiative	Period	Geographic Range	Comments
1.	Free Health Care	Routine ongoing	Nationwide	Addresses most important barrier of cost
2.	Maternal and Child Health Week	Twice yearly May and November	Nationwide	A vehicle for integrated packages
3.	National Immunisation Days	Periodic	Nationwide	Part of the global Polio Eradication Initiative.
4.	Outreach and Defaulter Tracing Activities	Routine ongoing	Nationwide	Captures missed & defaulting children
5.	Periodic Intensified Routine Immunization (PIRI)	Periodic	Selected districts	Based on performance

Information on the immunisation schedule for Sierra Leone, vaccines and routes of administration are presented in the annexes.

1.21 Supplemental Immunisation Activities (SIAs)

Sierra Leone has conducted several Supplemental Immunisation Activities (SIAs) as a responsive and preventive strategy. Sierra Leone has conducted several sessions of SIAs over the past few years:

- As a means of scaling up of High impact, evidenced based and cost effective interventions relevant to the achievement of SDG 3.
- As a strategy to prevent disease outbreaks in low coverage areas
- As a follow up mopping up exercise in post campaign periods in poorly covered areas.
- As a responsive campaign in cases of confirmed outbreaks.

Fortunately, it has also been feasible to deliver integrated packages during SIAs or during the course of Maternal and Child Health Weeks (MCHWs).

1.22 Maternal and Child Health Weeks

Maternal and Child Health Weeks (MCHW) have been highly effective in Sierra Leone in the delivery of integrated packages of maternal and child health interventions.

The campaigns have retained several commendable aspects, including good political will, good planning and resource mobilisation in a well-coordinated partnership forum, active community participation and effective social mobilisation.
It is worth noting that mass immunization activities are supplemental to routine activities which are necessary to reach children who, for one reason or the other, have been missed. The focus of MCHW is to reach as many children as possible and provide another opportunity for tracking missed children, as an effort aimed at complementing the facility based health service delivery. Nevertheless, it must be emphasized that present day focus is on reaching every child with the interventions. Mothers may also be reached with relevant interventions.

1.23 Integrated Management of Newborn and Childhood Illness

The Integrated Management of Newborn and Childhood Illness (IMNCI) is a strategy that addresses all the main causes of childhood illnesses and death. It recognizes that a child may actually be sick with more than one problem at the same time, and ensures that the occasion of a sickness consultation is not a missed opportunity to immunize the child or address a nutrition problem.
The strategy requires the delivery of Child Survival interventions to all communities irrespective of their circumstance, through static and outreach activities on a weekly basis. Sierra Leone developed and launched the Basic Package of Essential Health Services in 2010, which defines the minimum services delivered at each level of the health care delivery system.
However, the process still requires major support for ongoing capacity building, logistics availability and the conduct of supportive supervision.
IMNCI has now been introduced into all districts and there is gradual scaling up to all health facilities and communities.

1.24Surveillance System in Sierra Leone

Over the past years, there had been many vertical surveillance systems implemented by different health partners and organizations (Disease Control Programs, NGOs, Agencies and the private sectors). All of these programs and organizations maintained their own data collection and reporting instruments. Many of these forms had been introduced into the districts for staff to fill in regularly at the end of each month. Consequently staff were overburdened with the task of filling in numerous forms and it has been difficult to receive quality data that is complete, consistent and timely.

In 2008, the Ministry of Health and Sanitation decided to adopt the Integrated Disease Surveillance and Response (IDSR) as a strategy to improve the data collection, reporting and analysis. The IDSR documents have been adapted according to the country scenario and staff have been trained on the process and tools.
The district level is the focus for integrating surveillance functions. This is because the district is the first level in the health system with full-time staff dedicated to all aspects of public health such as monitoring health events in the community, mobilizing community action, encouraging national assistance and accessing national resources to protect the district's health.
All surveillance activities are coordinated and streamlined. Rather than using scarce resources to maintain separate vertical activities, resources are combined to collect information from a single focal point at each level.

Several activities are combined into one integrated activity to take advantage of similar surveillance functions, skills, resources and target populations. For example, surveillance activities for Acute Flaccid Paralysis (AFP) can address surveillance needs for Neonatal Tetanus, Measles and other diseases. Thus, health workers who routinely monitor AFP cases can also review district and health facility records for information about other priority diseases.
Surveillance focal points at the district and national levels collaborate with epidemic response committees (e.g. National Epidemic Response Committee, District Epidemic Management Committee, Village Development Committee) at each level to plan relevant public health response actions and actively seek opportunities for combining resources.
The goal of IDSR is to improve the ability of districts to detect and respond to diseases and conditions that cause high levels of death, illness and disability in the district's catchment area. An improved health and well-being of the communities in the district can be achieved by strengthening skills and resources for integrated disease surveillance and response.

The general overall objective of the IDSR strategy is to provide a rational basis for decision-making and implementing public health interventions that are efficacious in responding to priority communicable and non-communicable diseases (IDSR Technical guideline 2008).
In 2010 Sierra Leone included Rotavirus and Paediatric Bacterial Meningitis (PBM) into the routine surveillance system.

1.24 Waste Management
Sierra Leone is still struggling with the challenge of maintaining a good mechanism for effective waste management.
Routine immunization generates medical waste that should be managed well in accordance with the principles of injection safety and environmental friendliness.
Increase in waste is expected during campaigns and after the introduction of new vaccines.
The MoHS has established a medical waste unit within the MoHS headed by manager. Medical waste management focal points has also been identified in each district.

Auto disable needles and syringes are used to administer vaccines. The Technical Committee ensures adherence to injection safety at all levels through trainings, close monitoring and supervision. Used needles and syringes are collected in safety boxes and disposed by incineration or burning and burring. There are currently 14 macro burn incinerators installed across the country as a pilot project to support the waste management. This is closely monitored and a performance assessment will be conducted to determine their effectiveness as a means of guiding the scaling up process in each district.

A comprehensive long term waste management plan has been developed, in the light of the EPI in Sierra Leone.

1.25 Advocacy and Communication
Available evidence from analysis of supervision reports is suggestive of the fact that the prospects of relatively high missed opportunities, dropout rate and defaulting have been due to the apparent lack of knowledge about immunisation service delivery and its benefits among segments of the population.
There is an existing structure established to ensure effective advocacy and communication across the country.

The presence of functional District Social Mobilization Committees serves to bridge the existing gap in information dissemination.
The Sierra Leone District Health Services Baseline Survey conducted in 2008 revealed the radio as the most popular media. 59% of women and 79% of men aged 15 – 49 years listen to the radio. Presently, over 35 radio stations are distributed in all districts to guarantee wider transmission coverage to communities.
The existence of the Communication and Social Mobilization Committee at national level has brought on board crucial partners in communication including Sierra Leone Association of Journalists (SLAJ), the Inter Religious Council of Sierra Leone (IRCSL) Health for All coalition and Women's Forum to name a few.
District and national level committees operate based on annual plans, which address advocacy, social mobilization and programme communication.

2. EXPANDED PROGRAMME ON IMMUNIZATION

2.1 EPI Programme Mission Statement
Provide equitable access for all target groups, especially children and women of childbearing age (WCBA) to existing and new vaccines, and other interventions that lead to reduction of morbidity and mortality in Sierra Leone.

2.2 EPI Programme Goal
To achieve at least 95% coverage for fully immunized child and 90% coverage for TT2+ in pregnant women in order to reduce maternal and child ill-health, disability and deaths attributable to vaccine preventable diseases by 2015.

2.3 EPI Programme Objectives:
- To reduce measles mortality by 95% and morbidity by 90% by 2015
- To stop the transmission of wild poliovirus by the end of 2012.
- To attain and maintain a level of immunization coverage of at least 90% for children under one year for all vaccines given, by the year 2015.
- To immunize 75% of pregnant women with Tetanus Toxoid, as an effort towards reaching elimination of Maternal and Neonatal Tetanus by the year 2015
- To maintain and expand EPI cold chain

2.4 EPI within the Health Sector
The Expanded Programme on immunisation (EPI) in Sierra Leone was initially started on a small scale in the 1960s with the goal of reducing the huge burden exerted by childhood killer diseases. Subsequently, the EPI has evolved over the years amidst the challenges of contemporary times.
Between 1967 and 1970 Sierra Leone became part of the West African smallpox Eradication/Measles Control Programme. During this period the Endemic Disease Control Unit (EDCU) located in Bo district was responsible for giving vaccination in mobile teams. Subsequently, the teams added immunization against Cholera (1972) and Yellow Fever (1975).
In 1976 within the framework of technical co-operation following the resolution adopted by the World Health Assembly, the global EPI was launched. The Sierra Leone government joined the Expanded Programme on Immunization (EPI) through WHO.
The aim was to create a forum for co-operating with governments in expanding and establishing national immunization programmes to address the childhood diseases namely; Tuberculosis,

Diphtheria, Pertussis, Tetanus, Hepatitis B, Haemophilus Influenza Type b, Poliomyelitis, Measles, Yellow fever, Pneumonia, Bacterial Meningitis, Sinusitis through immunization activities.

The Expanded Programme on immunization was formally launched in Bo district in 1978, and included all four antigens for children and Tetanus Toxoid for Women of Child Bearing Age (WCBA). The following vaccines are currently used in the Routine Immunization Programme of Sierra Leone: BCG, OPV, Pentavalent, PCV 13, Measles, Yellow Fever and Tetanus Toxoid.
The Ministry of Health and Sanitation (MoHS) has the responsibility for immunization services in Sierra Leone. The Expanded Programme on Immunization of the MoHS aimed at reducing burden of diseases attributable to vaccine preventable diseases. The coverage for key antigens remained very low for many years until the programme was restructured and re-launched to achieve better coverage. This resulted in the attainment of coverage of 75% for Measles vaccination by 1990, the Universal Child Immunization (UCI) year. The services are delivered through a network of Primary Health Care (PHC) facilities generally referred to as Peripheral Health Units (PHUs).

EPI is one of the frontline public health programmes under the Directorate of Reproductive and Child Health (RCH) within the Ministry of Health and Sanitation. In a bid to address the high under-fives and infant mortality rates in the country, a programmatic restructuring was done. Currently, the EPI Programme is part of the Child Health Programme and is linked with other public health programmes such as Reproductive Health/Family Planning Programme, Nutrition Programme and School and Adolescent Health Programme. Functionally, the child health programme implements integrated maternal and child health programmes in collaboration with other technical programmes of the MoHS (Malaria, Health Education etc.)

In addition to the above childhood programmes, the Ministry's effort is complemented by a host of international agencies and Non-Governmental Organisations (NGOs) that are specifically health-oriented.
The NGOs play a crucial role in EPI Operations. Since most have means of transportation, they sometimes collect EPI materials and supplies from central level and deliver to the various EPI facilities. These NGOs also assist in collecting and forwarding EPI returns to the DHMT on monthly basis. They further provide assistance for capacity building in the form of basic and refresher EPI training.
These Organizations meet regularly, on a monthly basis, to discuss maternal and child health problems encountered in their various districts of operation.

2.5. Vaccines

The following vaccines are currently used in the National Immunization Programme of Sierra Leone: BCG, OPV, Measles, Yellow Fever, pentavalent (DPT-HepB-Hib), PCV 13, Rota and Tetanus Toxoid. New vaccines, Measles Rubella (MR), Inactivated Polio Vaccine (IPV), Hepatitis-b (Hep-B) and Human Papilloma Virus (HPV) Vaccine will be within the lifespan of this cMYP in a bid to reduce child mortality rates leading to the attainment of the SDG goals and contributing to sustainable socio-economic development.

2.6 Procurement of Vaccines and other Supplies

All EPI vaccines funded by Government of Sierra Leone GAVI and UNICEF are procured through the UNICEF Procurement system on a yearly basis; and are supplied to the programme in tranches.

2.7 Routine Immunization Service Delivery

There are three main designated EPI service delivery strategies:

- Static: Immunization services are provided in both public and private health facilities and temporary vaccination points where mothers and children are vaccinated on a daily basis.
- Outreach**:** These services are held periodically in communities that are within the catchment area (5 km) of the health facility. At least, five outreach sessions should be conducted per month per PHU at four different locations to cover their target population.
- Mobile Services**:** Planning for mobile team visits takes place at District level to places that are more than 5 kilometres from the nearest PHU and hard to reach communities. These visits are done in collaboration with NGOs in their operational areas who provide transport. Mobile teams often stay out in the field for at least one day at a time moving from community to community providing immunization and other health care services. This strategy has however not been sustained due to resource constraints.

Organisation of EPI Service delivery at PHU Level

There are three levels of PHUs, according to catchment population, location, accessibility and range of services delivered. The three levels of PHUs are as follows:

- Maternal and Child Health Post (MCHP): lowest PHU and is typically manned by a Maternal and Child Health Aide.
- Community Health Post (CHP): higher than the MCHP but lower than the CHC and normally manned by a Community Health Assistant.
- Community Health Centre (CHC): The highest PHU, usually located in the Chiefdom headquarter town and manned by a Community Health Officer.

The present policy on the location of PHUs is within the range of every 3-5 five mile radius. Presently, there are 1,317 functional PHU nationwide but there are still underserved communities. In certain areas, communities may be as far as 8 km from the health facility.

All technical programmes of the Ministry of Health and Sanitation converge at the PHU, which is the lowest level of service delivery. There is a referral network between the PHUs and the Government Hospital in the district headquarter town. The degree of effectiveness varies from one location to another.

2.8 Cold Chain

2.8.1 SWOT Analysis of Cold Chain in Sierra Leone

A detailed SWOT analysis of the current cold chain situation in Sierra Leone is presented in table5 below.

Table 5: SWOT Analysis of Cold Chain in Sierra Leone-2016

Strengths	Weaknesses	Opportunities	Threats
• Existence of guidelines on Vaccine and equipment management • Injection safety/safe disposal and destruction of EPI injection waste materials • Expansion of national cold room to accommodate PCV 13 • Use of fridge tag in all districts to monitor vaccine storage • Recruitment and training of new DOOs on vaccine and cold chain management • Availability of 13 new incinerators • Presence of an up to date cold chain equipment distribution list. • Availability of adequate supplies, equipment and consumables at district and health facility levels • Existence of a monitoring mechanism for supplies, equipment and consumables during • Solarization of health facilities in all 13 districts • Availability of trained solar technicians in all districts • EVM and VMA conducted	• Weak implementation of transport guidelines • Inadequate number and poor quality of incinerators • Weak ability to maintain and monitor cold chain • Inadequate storage space at national and district level for the introduction of new vaccine • Weak implementation of vaccine management and cold chain plan • Inadequate cold chain capacity at national and district levels for the introduction of new vaccines • Inadequate supportive supervision at all levels	• WHO/UNICEF support • GAVI support • Presence of in-country technical hands and NGOs familiar with solar technology. • Decentralization, with potential to ensure regular funding support for maintenance • Donor support for the expansion of cold rooms and replacement of current solar refrigerators at all levels •	• Theft of solar panels • Problems Associated with introduction of new technology • Frequent breakdown of cold chain equipment at all levels • Unavailability of spare parts for solar refrigerator in country

2.8.2 Cold Chain Equipment Management

Cold chain equipment functionality is vital in ensuring that safe and potent vaccines are given to children. The potency of vaccines should be maintained and this requires vaccines to be stored in and distributed through a functioning and effective cold chain system.

Three sets of Effective Vaccine Management (EVM) assessments which is a requirement to ensuring adherence to an acceptable standard of vaccine management practices at all levels has been conducted 2010, 2013 and 2016. The findings of the 2016 EVM assessment indicates an appreciable improvement in vaccine management system compared with that of 2013. Even though the country did not reach the 80% global set bars for each criteria, the assessment showed

improvement in 5 out of the 8 criteria at PHU and district levels and a decline in 6 out of 9 criteria at national level. There were recommendations made to better improve on the system. As part of the implementation of the 2013 EVM improvement plan, the cold chain capacity at national and district levels were expanded to accommodate the introduction of new vaccines. Currently there are 813 solar refrigerators installed at PHUs across the country of which about 80% are functional. The MoHS with support from partners will continue to replace obsolete cold chain while expanding to new health facilities.

The country has a central storage in Freetown from which vaccines are issued on quarterly basis to all 14 districts storage facilities. Districts distribute vaccines to all health facilities on monthly basis. The national store is manned by a national logistics Officer, with an assistant. The District stores are managed by District cold room officers, supported by a cold chain maintenance officer and supervised by a trained District Operation Officer (DOOs). The Peripheral Health Units (PHUs) are managed by in-charges who are trained health personnel (Nurses, Community Health Officers (CHOs), Community Health Assistants or Maternal and Child Health Aides (MCHA).

Based on the 2016 EVMA findings, further expansion is recommended to increase capacity for new vaccines at the national and district store levels. This includes the installation of the 4 new walk in cold rooms recently procured for central level and procurement of 36 Ice-lined Refrigerators (ILRs) in 2017.

A monthly preventive maintenance plan has been incorporated in the revised EPI policy and district cold chain technicians will receive refresher training on cold chain maintenance. Assorted spare parts are regularly procured for timely cold chain repair and maintenance as recommended in the costing tool and cold chain plan.

3 COMPREHENSIVE MULTI-YEAR PLAN -2017 – 2021

In updating this document, the MoHS reviewed and revised existing policies and strategies. In the same vein, the Child Health/EPI Programme renewed its commitment to deliver quality child survival initiatives and contribute to maternal health care services in Sierra Leone. This five-year comprehensive multi-year plan which is in line with the Global Immunization Vision and Strategies (GIVS), Global Immunization Vaccine Action Plan (GVAP), Sustainable Development Goals (SDGs) 2015 - 2030 and the country's Agenda for prosperity is developed for these purpose. The plan covers the period 2017 – 2021.

3.1 Situational Analysis

The first cMYP (2007 – 2011) development began with a number of assessments of various components of the Programme by national staff with external technical support. A national meeting was held to share roles and responsibilities. As a prerequisite for application to GAVI for new vaccines introduction, as well as the fact that the lifespan of the cMYP 2007 – 2011 was ending, the country in 2011 updated this document to produce cMYP 2012 – 2016. During the development of the cMYPs, national workshops intended to increase the scope of participation and input into the final draft of the plans were held.

During the implementation of the 2012-2016 cMYP, the country experienced an outbreak of Ebola Virus Disease from May 2014 to November 2015. This outbreak negatively affected the health sector including the implementation of services.

Development of the cMYP 2017 – 2021, became necessary with the expiration of the 2012 – 2016 document. Similar approach was used in the development of previous plans was employed. However, emphases were laid on analysis of accelerated disease control initiatives and on immunization system components. The findings and recommendations of the Programme reviews, as well as other assessment/evaluation exercises such as the Data Quality Self-Assessment Survey (DQS), National EPI Coverage Survey (2013), Effective Vaccine Management (2016) and Cold Chain Assessment (2014), National Health Sector Recovery Plan (2015 - 2020), National Post Ebola Health Sector Recovery Plan (2015 - 2020), national census 2015 results, MICS 4 - 2010, DHS 2013, WHO/UNICEF Joint Reporting Forms (JRF) and GAVI Annual Progress Reports (now known as GAVI Joint Appraisal Report) were used during the developments or updating of cMYP.

Table 3 SWOT Analysis by System Components

Components	Strengths	Weaknesses	Opportunities	Threats
1. Service delivery	• Nationwide implementation of Free Health Care Initiative • Dedicated health staff at national, district and health facility levels. • Very strong collaboration between MoHS, WHO, UNICEF and NGOs • Contribution by communities towards the provision of clinic structures/buildings for CH/EPI services • Availability of continuous supply of vaccine and injection materials • Despite the fluctuating figures, high immunization coverage were achieved for most of the vaccines from 2011 - 2015. • Attained high coverage rates for SIAs (preventive and response). • Integration of child survival interventions into routine immunization. • Increase in the number of service delivery point. • Capacity building for all PHU staff on Immunization in Practice (IIP)	• Problems with determining denominator population • High Dropout rates observed with some antigens. • Difficulty in determining wastage rates. • Inadequate human resource capacity at all levels Weak defaulter tracing. • Insufficient community involvement in the planning and implementation of routine immunization services. • High staff attrition rates. • Irregular outreach and mobile services. • Weak supportive supervision at all levels. • Inadequate logistics for waste	• There is high political commitment. • Support from GAVI, WHO, UNICEF and other partners • Active participation of some of the NGOs in routine and supplemental immunization service delivery. • National Post Ebola Health Sector Recovery Plan • Donor commitment	• Existence of competing attractive job markets both within and abroad. • Physical barriers in the form of Riverine and Mountainous areas (approximately 40% of the population inaccessible). • Disease outbreaks and natural disasters.

	• Uninterrupted immunization service delivery during the outbreak	management. • Inadequate transport for immunization services. • Absence of immunization bill. • Nonexistence of NITAG		

SWOT Analysis by System Components (Contd.)

Components	Strengths	Weaknesses	Opportunities	Threats
Surveillance	• Existence of a National Surveillance Directorate. • Existence of surveillance structure at national, district and health facility levels. • Case-based surveillance established for some of the priority diseases (list available in national IDSR technical guidelines) • IDSR cascade trainings conducted for health workers in all the districts and public health facilities. • Achievement of Polio and other case based surveillance indicators. • • Improved reporting of IDSR priority disease mechanism	• Inadequate human and material resources at the national references laboratory. • Inadequate laboratories nationwide for the analysis of vaccine preventable diseases. • Sentinel surveillance for Rota virus, influenza and Pediatrics Bacterial Meningitis (PBM) are only available in selected sites in Freetown. • Inadequate road worthy vehicles and motorbikes. • Weak AEFI Surveillance system.	• Existence of WHO IDSR technical and financial support. • Involvement of some NGOs in surveillance in their respective areas of operation • Establishment of CDC office in the country	• Risk of importation of communicable diseases from neighbouring countries

	with strong commitment from MoHS and partners. • Improvement in the laboratory networking • Strengthened National Public Health Laboratory • • Provision of financial and technical support from partner agencies • Partial accreditation for the diagnosis of measles and Yellow Fever.			

SWOT Analysis by System Components (Contd.)

Components	Strengths	Weaknesses	Opportunities	Threats
Vaccine supply and quality	• Existing capacity to forecast vaccine needs at National, District and Health facility levels • Improved capacity for vaccine storage facilities at national and district levels • Observance of the principles of stock monitoring and/or rotation at National, district and health facility levels • Provision of immunization monitoring chart at health facility level • Capacity building and use of DVD-MT and SMT at	• Limited monitoring of vaccine wastage at National, district and health facilities • Inadequate capacity at district and health facility levels to calculate wastage rates • Incomplete and irregular submission of DVD-MT • Inadequate use of immunization monitoring chart at health facility level • Obsolete computers at district level	• There is a National Regulatory Authority (NRA) • GAVI support through NVS and HSS windows • UN and NGO contribution to vaccine supply and quality •	• Unstable/increasing Global Vaccine demands and prices • Global financial crisis • Use of new and expensive vaccines co-financed by GAVI

	districts and national levels respectively • All vaccines utilized by the National EPI Programme comes from WHO/UNICEF approved sources • availability of computers and accessories for national and District EPI Offers			

SWOT Analysis by System Components (Contd.)

Components	Strengths	Weaknesses	Opportunities	Threats
Cold chain and logistics	• Existence of guidelines on Vaccine and equipment management • Injection safety/safe disposal and destruction of EPI injection waste materials • Existence of a national waste management programme • Expansion of national cold room to accommodate new and planned vaccines • Use of fridge tag (FT2) in all districts and health facility level to monitor vaccine storage • Recruitment and training of	• Weak implementation of transport guidelines • Weak ability to maintain and monitor cold chain at health facility level • Inadequate number and poor quality of incinerators at health facility level • Low utilization of district micro burner incinerators • Inadequate dry storage space at national and district level for the introduction of new vaccine • Weak implementation of	• WHO/UNICEF support • GAVI support • Presence of in-country EPI Unit technicians and NGOs familiar with solar technology. • Decentralization, with potential to ensure regular funding support for maintenance	• Theft of solar panels

	new DOOs on vaccine and cold chain management • Availability of 13 micro burner incinerators • Presence of an up to date cold chain equipment distribution list. • Availability of adequate supplies, equipment and consumables at district and health facility levels • Existence of a monitoring mechanism for supplies, equipment and consumables during	Effective Vaccine Management and Cold Chain assessment recommendations • Inadequate number of solar refrigerators for the EPI health facilities • Inadequate functional cold chain equipment (about 80% functional) • Lack of refrigerated vehicle for vaccines distribution at national level • Poor usage of FT2 at health facility level • Poor maintenance culture at district level		

SWOT Analysis by System Components (Contd.)

Components	Strengths	Weaknesses	Opportunities	Threats
Cold chain and logistics	• Solarization of health facilities in all 13 districts • Availability of trained solar technicians in all districts • EVMA and Cold Chain Assessment conducted	• Inadequate supportive supervision at all levels •	• Cold chain equipment support from partners (World Bank, JICA, DFID and Polish NATCOM)	• Problems Associated with introduction of new technology • Frequent breakdown of cold chain equipment at all levels • Non availability of some spare parts for

				cold chain maintenance •
Advocacy and communication	• Existence of community Structures for Social Mobilization activities in all districts • Existence of district Social Mobilization committees in all districts • Availability of advocacy communication plan • Strong political commitment • Existence of ICC/HSSG • Active community involvement and participation in SIAs • Existence of communication structures at national and district levels • Provision of feedback to communities through periodic meetings organized by health staff	• Limited community involvement in the planning, implementation and monitoring of routine immunization activities • Limited utilization of the Mass and electronic Media in routine EPI activities • Limited Government funding for Advocacy and communication • Faulty VHF radio units.	• Strong partners support for social mobilization activities • Existence of both Mass and electronic Media facilities in the country • Availability of mobile phone network in all districts • Involvement of private sector in EPI activities • Existence of private business outfits as potential partners in EPI • General acceptance of communities	• Limited Donor/Partner support for Advocacy and communication for routine EPI.

SWOT Analysis by System Components (Contd.)

Components	**Strengths**	**Weaknesses**	**Opportunities**	**Threats**

Programme Management	• Existence of a National Health Sector Strategic Plan that addresses the needs of the un-served and the underserved populations as well as issues of equity • Existence of a national policy on Free Health Care services for all children under five, pregnant women and lactating mothers • Existence of an RCH strategic Plan • Decentralization of PHC services including EPI • National level coordination of the planning, implementation and monitoring of service provision in the Public sector • National level conduction of periodic evaluation to assess progress towards the attainment of goals and objectives • Clear roles and responsibilities of EPI staff at all levels.	• No involvement of health facility staff in the development of district annual operational plans • Inadequate funding to support approved planned activities at all levels. • Inadequate facilities for capacity building internally and externally. • Inadequate supportive supervisory visits at all levels. • Weak reporting and feedback mechanism at national and district levels.	• Commitment of support by Donor /multi/bi-lateral organizations. • Existence of Health Developmental Partners	• Existence of competing job markets both within and without the country. • Difficulty in integration and coordination of private sector in routine immunization activities.

SWOT Analysis by System Components (Contd.)

Components	Strengths	Weaknesses	Opportunities	Threats
Financial sustainability	• Government commitment to Sustainable Immunization Financing (SIF). • Existence of a budget line for the EPI programme	• No community based financing mechanism in place • Limited or lack of sustainable financing mechanism for EPI (Immunisation Trust Fund)	• Worldwide advocacy for sustainable immunization financing (SIF) • GAVI Funding available • Existence of Performance based financing	• Global Economic downturn.
Human resource and Institutional strengthening	• Availability of trained and dedicated health staff at all levels. • Existence of health training institutions in all districts. • Existence of a supervisory checklist used by national and district staff • National and district supervisors provide technical and administrative support to health facility staff	• Inadequate trained manpower at all levels. • No effective staff appraisal system • Difficulty in posting staff to rural/remote areas.	• Technical and financial support from WHO/UNICEF and other partners • Availability of GAVI support	• Increasing presence of competing job markets

Table 4Key recommendations from previous evaluations and assessments

Name and Year	Main recommendations	Objectives required for the new plan
National assessment of system wide barriers to immunization (2004)	• Expand Public-Private Partnership for immunization services	By 2016, at least 95% of target populations would have access to immunization services.
Financial Sustainability Plan (FSP) (2004)	• Reduce wastage	• By 2016, vaccine wastage rates would have been reduced to ≤ 30% for lyophilized and ≤ 10% for liquid vaccines
	• Reduce drop out	• By 2016, dropout rate from all antigens would have been reduced to < 10%.
	• Increase coverage	• By 2016, national Pentavalent 3 coverage would have increased from current 64% (EPI coverage survey 2010) to 90%, and at least 80% coverage in every district.
UNICEF Mid-Term review 2005	-Increase out-reach/mobile activities to hard to reach areas country wide - Provision of transportation (motorbikes/bicycles) - Integrated Soc. Mob around EPI/ interpersonal communication for completion of immunization doses	• By 2016 all functional PHUs with adequate capacity to conduct at least four sessions per week. • By 2016 at least 80% of mothers/child minders are motivated enough to access immunizations on schedule.

Key recommendations from previous evaluations and assessments

Name and Year	Main recommendations	Objectives required for the new plan
Post Introduction Evaluation (PIE) 2008	**Planning and Introduction** Assure planning process which incorporates microplanning input from the lower levels and results in guidelines which are widely distributed to districts, health facilities and their partners.	By 2012 all planning process will be done based on the bottom up approach.
	Cold Chain Capacity, Vaccine and Logistics Management Recommendations of the 2007 Vaccine Management Assessment should be fully implemented, Cold chain capacity should be expanded: National level: second positive cold store to be constructed as soon as possible, District level: additional refrigerator for vaccine storage needed in all districts. Internal thermometers to be provided for all refrigerators. Freeze watch monitors to be used during vaccine transportation. Bundling of vaccine, AD syringes and safety boxes needs to be applied at all levels.	By 2012 second positive cold store constructed at national level. By 2012 at least 80% of PHUs have functional refrigerator with enough space to store vaccines adequately.
	Waste Management and Injection Safety: Waste management practices need urgent attention: provision of guidelines, sensitization of issues, practical training.	By 2012 at least 20 waste management units installed across the country and staff trained on waste management practices. By 2012 massive community sensitization on waste management practices have started and are ongoing.
	Coverage and Reporting: Harmonize population estimates: Apply consistently DPI estimates at all levels Analyze and use data for action: Vaccine coverage, drop-out and wastage rates should be calculated at all levels and should trigger appropriate actions.	By end of 2011 harmonized population estimates available and widely disseminated. By end of 2011 capacity of health staff built on data management and use of data for action.
	Adverse Events Following Immunization: Establish and implement nation-wide AEFI monitoring system through training and sensitization at all levels.	By 2012 effective monitoring system established for routine AEFI surveillance at all levels.

Key recommendations from previous evaluations and assessments

Name and Year	Main recommendations	Objectives required for the new plan
National EPI Coverage survey (2013)	➢ Conduct targeted supervision and on-site training of PHU staff to improve quality of immunization services by administrating vaccine doses according to National Immunization Schedule. ➢ Improve administrative reporting by reviewing and verifying denominator figures to adjust TT coverage data regarding pregnant mothers. ➢ Boost immunization coverage by extensive use of outreach strategy and involvement of private sector to reach hard to reach communities. ➢ Undertake operational studies to learn how to reduce immunization failure in children and women due to "Lack of motivation" and "Obstacles" through interventions at immunization sites (changing time of session or location of sites, increasing outreach, improving communication, etc.). ➢	➢ By 2021, all districts would have sufficient funding, training and technical support to implement the RED strategy.
Cold chain assessment (2014)	The recommendations for the cold chain assessment are classified into two major headings: managerial and programmatic. **8.1 Managerial Recommendations:** **8.1.1 Immediate (one to 3 months)** 1) The first recommendation overall will be for the country to develop an improvement plan for the cold chain assessment. This should follow the format for the EVMA improvement planning with country identifying the level of importance of each recommendation and developing an implementation plan with timelines for completion and budgets. A responsible person/organization for each activity should be identified for accountability. 2) There is a need to repair the cold room at Lungi. This serves as both a transit point for vaccines coming into the country and also as additional	➢ By 2013, an EPI dry store would have been constructed for the national level. ➢ By 2021, a district cold chain store would have been constructed for Western Area rural district. ➢ By the end of 2021, staff responsible for managing child health program supplies would have been trained on the use of DVD MT, SMT, IRRP and EVM

	storage point for the country and so is very strategic pending the completion of the new airport. 3) Districts are to establish and maintain an inventory data base for all cold chain equipment. The database developed during the assessment should be used for the slow cold chain equipment (refrigerators and freezers) while a simple excel spreadsheet should be used for the fast cold chain equipment (cold boxes, vaccine carriers and ice packs). These should be regularly and periodically updated and shared with the national level (the National Cold Store should be the secretariat) with copies to WHO and UNICEF EPI programs. 4) The district solar technicians supported by the technicians at the central vaccine store should conduct a detailed assessment of the non-functional equipment as identified by the cold chain assessment to determine which equipment are repairable and which equipment should be boarded and disposed of from the system. This will allow for a more systematic approach to ensuring that equipment that are not viable are replaced while equipment that are still usable are properly maintained. 5) Retrain the HWs on the use of the fridge tags and the reporting of alarms (phone calls, text messaging, etc) as routine. This should be done during supportive supervisory visits by cold chain technicians, DOOs and higher level (national level) staff. **8.1.2 Intermediate (4 months to one year)** There is a need to replace the 35 year old cold room at the central vaccine store (already a recommendation in the previous CCA and the 2 EVMAs) and to also fast track the procurement and installation of a negative temperature freezer room at the national level for the storage of OPV and other non-freeze sensitive vaccines. The current practice of storing OPV at positive temperatures considering the supply period of 6 months is not conducive for the storage of OPV. 1) The country should develop a 5 year inventory replacement and rehabilitation plan. This plan should include a planned preventive maintenance that should be adopted by all districts, identify which equipment are due to repairs/preventive maintenance periodically and also equipment that are due for replacement and cost these items to be included in the annual budgets of both the MoHS and the districts. The	

	maintenance plans should include indicative costs for the planned preventive maintenance. All these can be deduced from the IRP-tool used as the inventory database. A compliance monitoring system should form part of this plan and copies of equipment for replacement should be shared with the districts for action. 2) The government and partners should fast track the completion of the new EPI dry store. 3) The district and central level technicians need to be re-trained especially regarding new technologies being introduced into the immunization supply chain such as the solar direct drive (SDD) which the country is currently field testing (Sure-Chill from True Energy) and solar generators used in powering equipment and health facilities. 4) As a follow up on the last assessment conducted in 2009, a District Cold Store should be provided for Western Area Rural district as the District Cold Store at Western Area Urban is not adequate for both districts. 5) Establish the monthly reporting of fridge tag data as a monitoring tool for cold chain equipment performance. This should involve visits to the HFs and district cold stores by the DOOs and other staff on supportive supervision to down load the data and share on monthly basis with the national level (NCCO to be the recipient of the data and the national EPI team to review the data). **8.1.2 Long term (over one year)** 1) With respect to new vaccines introduction and based on the vaccines pipeline, there is a need for government and development partners, especially UNICEF, WHO and GAVI to develop a cold chain expansion plan. This plan should be twofold: a. Expand the scope of the cold chain to include HFs conducting RI that are currently not equipped with a slow cold chain equipment. This will require a concerted effort between the national level and the districts as to plans of building more HFs and also plans to expand RI conducting HFs beyond the existing ones. b. Expand the existing capacity especially at the district and national level to accommodate new vaccines.	

	2) Implement the country 5 year inventory replacement and rehabilitation plan and monitor progress of implementation with biannual report shared with government (both central and district) and partners. **8.2 Programmatic** • Review the wastage monitoring system (include logistics component in the primary data collection forms). This will enable the system to monitor vaccine utilization and programmatic wastage rates from HFs to the storage sites • Review the wastage rates for planning. The current rates are not adequate for a programme that has not matured to the point of using unverified data for planning **Other Recommendations:** 1) All electric freezers, fridges, and cold rooms must be equipped with appropriate stabilizers and electronic temperature loggers. 2) The Lungi location of WICF should be connected to the airport in order to have constant electricity. This should be treated as a national priority and advocacy visit should be paid to the airport authorities. This should be spear headed by The Hon Minister of Health and Sanitation. 3) The National Logistics Officer need to have two additional officers to support him in running the national cold store. This is required to enable the NVS to conduct supportive visits to the lower levels on a more regular basis. 4) Procure additional Kick Polio (Rush type) vaccine carriers to bridge existing gap and also replace the damaged ones in the system. ➢ .	
Effective Vaccine Management (2016)	Major areas that require immediate intervention include 1. Development of infrastructures (building and equipment) at central and district levels to provide adequate capacity for storage and better working environment to staff. 2. Strengthening the platform for information dissemination across all level	➢ By the end of 2021, preventive maintenance plans (SOP's) for facilities and cold chain equipment would have been prepared ➢ By 2021, vaccine wastage data would have been included in the HIMS/LMIS

	of the supply chain to keep everyone in the system abreast of results of immunization activities by ensuring that records are shared with and accessible at all levels. 3. Skills development for personnel to enable them carries out vaccine and cold chain management activities effectively using standard tools and current technology. 4. Provision of standard tools for repair and maintenance, vaccine distribution as well as temperature monitoring	and compiled wastage data is used both for forecasting needs and evaluation of program performance .

Table 5 National priorities, objectives and milestones; regional and global goals, and order of priority

Description of problems and other national priorities	**National objectives**	**Milestones**	**Regional and global goals (until 2020)**	**Order of Priority**
1. High Drop-out rate	By 2021, dropout rate would have been reduced from 10% to 5% and below.	**2017**: Reduced to 10% **2018**: Reduced to 9% **2019**: Reduced to 8% **2020**: Reduced to<=7% **2021**: Reduced to<=5%	By 2020 or sooner , the GAVI goal of 90% immunization coverage at national level and 80% coverage in all districts would have been achieved and	High

			improved.	
2. High wastage rate	By 2021 wastage rate of BCG would have been reduced to 30% and below, other re-constituted antigens to 10% and below, pentavalent and Pneumococcal to 5% and below	**2017**: 50% ; 10% ; 5% **2018**: 45% ; 8% ; <5% **2019**: 40% ; 5% ; <5% **2020**: 35% ;<5% ; <5% **2021** <30% ;<5% ; <5%		High
1. Maintain high immunization coverage	By 2021, all 14 districts would have achieved Penta3 coverage of at least 95%.	**2017:** 90% **2018:** 91% **2019:** 93% **2020**: 94% **2021:** 95%		High
4. Introduce IPV	By 2017, IPV would have been introduced in all 14 districts	2017; 3rd Qrt: Training/Soc. Mob & distribution, Review/adaptation of materials, Initiate vaccine procurement, Nationwide Introduction of IPV		High
Introduce Measles Rubella Vaccine	By 2018, introduce Measles Rubella vaccine into routine immunization services	2018; 3rd Qrt 2017: Prepare implementation plan 4th Qrt 2017:Development of communication plan 4th Qrt 2017: Initiate vaccine procurement, Review/adaptation of materials, 1st Qtr 2018: Training/Soc. Mob &		High

		distribution, Nationwide Introduction of Measles Rubella vaccine 1st Qrt 2018: Advocacy and stakeholders meeting		
Conduct Comprehensive EPI Review	By 2017 Comprehensive EPI Review would have been completed	2016: 4th Qrt 2016: Prepare implementation plan 1st Qrt 2017: Request for TA, 1st Qrt 2017: Development of Implementation materials, Review training materials, Conduct the Review.		
Introduction of HPV into routine immunization	By 2018, HPV would have been introduced into the national routine immunization	3rd Qtr 2017: Submit introduction plan 1st Qtr 2018: Planning for HPV introduction 2nd Qtr 2018: Development of communication plan, Initiate vaccine procurement, Review/adaptation of materials, Training/Soc. Mob & distribution,		

		3rd Qtr 2018: HPV Introduction into the national routine immunization		
Introduction of Hepatitis 0 vaccine at birth	By 2018, Hepatitis0 vaccine at birth would have been introduced into the national routine immunization	2017: Submit application to GAVI for Hepatitis0 vaccine at birth introduction into routine immunization 1st QRT 2018: Planning for Hepatitis0 at birth introduction 2nd QRT 2018: Development of communication plan, Initiate vaccine procurement, Review/adaptation of materials, Training/Soc. Mob & distribution, 3rd QRT 2018: Hepatitis0 at birth Introduction into the national routine immunization		High
TT switch to Td	By 2019, switch from TT to Td vaccination	2018: Submit application to GAVI for TT to Td switch 1st QRT 2018: Planning for TT to Td switch 2nd QRT 2018: Development of communication plan, Initiate vaccine procurement, Review/adaptation of		High

		materials, 3rd QRT 2018: Training/Soc. Mob & distribution, 4th QRT 2018: National switch from TT to Td done in all health facilities		
Conduct Comprehensive Cold Chain Assessment	By 2nd Qtr 2017, comprehensive cold chain assessment would have been conducted.	1st Qtr: Request for TA, Develo the training materials, conduct trainings & conduct the assessment.		High
Establish NITAG	By 3rd Qtr 2017, NITAG would have been established.	1st Qtr 2017: Conduct advocacy meeting with stakeholders, Develop TORs for Members, 2nd Qtr 2017: Recruit NITAG members & make them functional.		High
Establish National Logistics Working Group (NLWG) for Immunization Supply Chain Management (iSCM)	By 2nd Qtr 2017, NLWG for iSCM would have been established.	1st Qtr 2017: Conduct advocacy meeting with stakeholders, Develop TORs for Members, 2nd Qtr 2017: Recruit NLWG members & make them functional.		High
Develop Immunization Data Quality Improvement Plan	By 2nd Qtr 2017, the Immunization data Quality Improvement Plan would have been developed.	4th Qtr 2016: Conduct advocacy meeting for the development of the data quality improvement plan 1st Qtr 2017: Request for		High

		TA, Conduct Desk reviews and develop the Data Quality Improvement Plan 2nd Qtr 2017: Implement the Data quality improvement pan.		
Establish Environnemental Surveillance sites for Polio and commence surveillance	By 3rd Qtr 2017, Environmental surveillance sites would have been established and surveillance commenced.	1st Qtr 2017: Identify the possible environmental surveillance sites Train personnel on Environnemental surveillance Ensure availability of specimen collection and shipment materials		High
Validate National routine immunization strategy	By 2nd Qtr 2017: The national Routine immunization strategic document would have been validated	1st Qtr 2017: Conduct KAP survey 2nd Qtr 2017: Validate the Routine Immunization Strategic document, Extract communication plan.		High

National priorities, objectives and milestones; regional and global goals, and order of priority

Description of problems and other national priorities	**National objectives**	**Milestones**	**Regional and global goals (until 2021)**	**Order of Priority**
5. Maintain	By 2021, Sierra Leone	2017 - 2021:	By 2021, the regional	High

Polio free certification standard status	would maintain it polio free Status.	Strengthen routine immunization with bOPV/IPV Conduct several rounds of polio NIDs as required. Intensify AFP surveillance at all levels. Intensify clinician and community sensitization on polio.	polio eradication would have been achieved and maintained.	
6. Maintain high measles immunization coverage	By 2021 at least 90% Measles Second Dose immunization coverage would have been maintained to at least 90% in all 14 districts	**2017:** 82% **2018:** 84% **2019:** 86% **2020**: 88% **2021:** 90%	Measles elimination in all countries of the region by 2020. (WHO/Africa region) - 90% reduction in infant mortality by 2016 compared to 2008	High

Table 6 National priorities, objectives and milestones; regional and global goals, and order of priority

Description of problems and other national priorities	**National objectives**	**Milestones**	**Regional and global goals (until 2016)**	**Order of Priority**
9. Enhance national immunization advocacy and communications	By 2021, 90 % of advocacy and communication activities funded would have increased from 70% to	**2017:** 70% **2018:** 75% **2019:** 80% **2020:** 85% **2021:** 90%		High

	90%			
	By 2017 all 14 districts would have developed and implemented advocacy and communication's plans on EPI	**2017:** EPI communication plan finalized and adopted **2021:** 14 districts implementing communication plan		High
10.Strengthen Integrated Disease Surveillance and Response (IDSR)	By 2021, IDSR would have been fully implemented in all 14 districts	**2016:** Train all health care staff of on IDSR **2021:** IDSR implemented in 14 districts		High
11.Ensure availability of safe and efficacious Vaccines and other supplies	By the end of 2021, all health facilities conducting EPI services will be reporting no stock-out of potent vaccines and other supplies	**2021:** No stock-out of vaccines at all levels		High
12. Financial sustainability	By 2021, national funding for Immunisation activities would have increased by 10% per year to at least 90%	**2017:** 50% **2018**: 60% **2019:** 70% **2020:** 80% **2021:** 90%		High

National priorities, objectives and milestones; regional and global goals, and order of priority

Description of problems and other national priorities	**National objectives**	**Milestones**	**Regional and global goals (until 2016)**	**Order of Priority**
13.Inadequate	By 2021, 90% of vacant	**2017:** 50% vacant post filled		High

Description of problems and other national priorities	National objectives	Milestones	Regional and global goals (until 2016)	Order of Priority
Health workforce especially at PHU level	PHU posts would have been filled and sustained with MOHS employees	**2018**: 60% vacant post filled **2019:** 70% vacant post filled **2020:** 80% vacant post filled **2021:** 90% vacant post filled		
14. Injection Safety	By 2021, all health facilities providing EPI services will maintain good injection safety practice according to national guidelines	**2021**: All health facilities would have maintained good injection safety practice	By the end of 2021, all countries would use only auto-disable syringes for Immunization	High
Expand cold chain at all levels	The percentage of functional CCE at all levels would increase from the present 80% to 95% by 2021	All districts would have an active and effective cold chain maintenance system in place	Less that 5% breakdown of cold chain equipment would be reported	High

Table 7: Strategies and key activities

A: Service delivery

Objectives	Strategies	Key Activities
1. By 2021, all 14 districts would have achieved Penta3 coverage of at least 95%.	Strengthening of outreach and defaulter tracing	Develop 14 district, chiefdom based micro-plans for outreach and defaulter tracing
		Strengthen outreach services in 1317 PHUs & trace defaulters
	Establishment of service-community link	Conduct quarterly Community Engagement meetings (FGDs, strengthening of VDCs and CHWs link with services and Stakeholders meeting for participation
	Public-Private Partnership	• Engage additional private health facilities staff

		• Strengthen collaboration with CBOs & CSOs in immunization services
	Reaching hard-to- reach areas	• Provide logistics support for hard to reach services • Conduct facility based micro-planning • Conduct monthly review meetings to update data on hard to reach areas •
	Community engagement	• Strengthen community (Village Development Committees (VDCs) and Community health workers (CHWs) dialog and participation, in EPI activities. • Use of innovative strategies to reach communities to increase uptake of immunization services (e.g. use of mobile phones, community score card and surveillance)
	Supportive supervision	• Conduct monthly supportive supervision at district level • Conduct quarterly supportive supervision by national level to districts and PHUs • Provide feedbacks to relevant levels.
	Monitoring and use of data for action	• Conduct regular data analysis and harmonization for action at all levels
		• Conduct National bi-annual National programme review meetings • Conduct EPI quarterly review meetings • Conduct quarterly district Data Quality Self-assessments (DQS) • Conduct annual national DQS • Conduct monthly PHU (1317) in-charges meeting in all districts • Update, produce and disseminate data

		management tools • Procure Lap tops, and desk top computers with accessories. • Develop Immunization Data Quality Improvement Plan • Conduct data harmonization meetings • Monitor the timeliness and completeness of EPI related data (FT-2, DVD MT, Cold chain Inventory) • Introduce electronic vaccination data collection system (VaxTract)
	Conduct Integrated Maternal and Child Health Services with routine immunization	• Develop joint plan with other programmes • Integrate other services (LLIN, Vitamin A ,Albendazole) with routine immunization during MCHW and SIAs • Integrate Intermittent Presumptive Treatment for Infants (IPTI) with routine immunization
	RED approach strategy	• Support follow up training on RED approach strategy for health workers at all levels • Support the Implement the RED approach components • Intensify monthly monitoring of RED approach
	Periodic Intensified Routine Immunizations (PIRIs)	• Conduct quarterly data analysis to identify areas for PIRIs • Conduct Periodic Intensive Routine Immunization Services (PIRIs)
By 2021, IPV coverage would have been the same as Penta 3 coverage	Maintain the RED for RCH strategy	• Monitor IPV and Penta 3 coverage •
By 2017, introduce Measles	Capacity building	Training of health staff on Measles Rubella vaccine

Rubella vaccine into routine immunization services	Advocacy with decision makers Review of policies Social mobilization and program communication	Sensitize politicians and opinion leaders Review EPI policy to include measles rubella • Introduce key messages on measles rubella vaccination
By 2019, HPV would have been introduced into the national routine immunization	Capacity building Advocacy with decision makers Review of policies Social mobilization and program communication	Training of health staff on HPV vaccine Sensitize politicians and opinion leaders Review EPI policy to include HPV • Introduce key messages on HPV vaccine
By 2018, Hepatitis 0 vaccine at birth would have been introduced into the national routine immunization	Capacity building Advocacy with decision makers Review of policies Social mobilization and program communication	Training of health staff on Hepatitis0 vaccine Sensitize politicians and opinion leaders Review EPI policy to include Hepatitis0 • Introduce key messages on Hepatitis0 vaccine
By 2021, Sierra Leone would maintain it polio free Status.	Ensuring functionality of Polio Eradication Committees	Support Polio Eradication committees [National Certification Committee (NCC), National Polio Expert Committee (NPEC) and National Containment Task Force (NTF)]
	Maintenance of standard AFP surveillance documentation	Monitor AFP surveillance database and district reporting
		Monitor active surveillance management tools and provide feedback
	Polio eradication strategies	Monitor and supervise all polio eradication strategies
	Introduce IPV into the routine EPI services	Introduce one dose of Inactivated Polio Vaccine (IPV)

A: Service delivery (contd)

Objectives	**Strategies**	**Key Activities**
3. By 2021 at least 70% Measles Rubella second dose immunization coverage would have been attained in all	Conduction of Measles Rubella SIAs	Conduct Measles Rubella catch up campaign for <15 in 2018 Conduct Measles Rubella follow up campaign for < 5 in 2021

14districts	Strengthen Measles second dose routine coverage	• Sustain the supply of measles vaccine at all levels • Support defaulter tracing and outreach activities • Continuous sensitization of communities on the need for measles second dose
	Measles Rubella introduction	Introduce/switch MR vaccine into routine immunization services by 2018
	Integration of Measles Rubella SIAs with other interventions	Integrate Measles Rubella vaccine SIA with Vitamin A, deworming tablets, etc)
2. By 2021, Td 2+ coverage for WCBA would have increased from 6% in 2016 to at least 15% in 2021 3. By 2021, Td 2+ coverage for pregnant women would have increased from 95% in 2016 to at least 99% in 2021	Increase Td2+ coverage for WCBA	• Conduct TT/Td vaccination of Non-pregnant women • Strengthen target vaccination for TT/Td in pregnant women • Intensify TT/Td immunization in schools • Conduct 3 rounds of TT/Td SIAs • Switch from TT to Td in 2019
10. By 2021, dropout rate would have been reduced from above 10% to below 5% for measles second dose.	Strengthening of defaulters tracing	• Support districts to conduct Active community engagement • Support the strengthening of defaulter tracing and outreach • Monitor monthly defaulter tracing activities

B: Advocacy and communications

Objectives	**Strategies**	**Key Activities**
11. By 2021 all 14 districts would have developed and implemented advocacy and	Development and implementation of advocacy and communication plans	• Review and adapt District communication plans to include key messages on RI and SIAs,

communication's plans on EPI		• Develop districts communication plans for hard to reach communities • Increase community convergence meetings (Stakeholders/Partners/Community convergence/VDC meetings) • Implement Mass media activities (radio, TV, Drama etc) • Develop Print and Distribute IEC materials • Conduct House-to-House/Street-to-Street announcement/IPC • Conduct KAP and other surveys

C: Surveillance

Objectives	**Strategies**	**Key Activities**
12. By 2021, IDSR would have been fully implemented in all 14 districts	Continue support for IDSR implementation	Active surveillance in every district
		Monitoring of IDSR Core indicators at all levels
		Improve epidemic response time
	Support community-based surveillance	Continue sensitisation and orientation of community health workers
		Community involvement in surveillance and all RCH activities
	Strengthen AEFI monitoring system	• Orientation of PHUs and community health workers on AEFI • Provide AEFI monitoring tools.
		• Include AEFI in national database for district monitoring
		• Monthly monitoring of AEFI data • Improve response to AEFIs
	Strengthen Central Public Health Reference Laboratory (CPHRL)	• Establish Regional Public Health Reference Laboratories (RPHRL)

		• Procure laboratory Equipment and reagents
		Conduct orientation for Laboratory staff
	• Strengthen the system of preparedness against importation of diseases in line with International Health Regulation (IHR)	• Update importation plan as necessary • Monitor timeliness, completeness and reliability of data • Conduct refresher trainings for health workers
	• Strengthen IHR core capacity	• Review public health ordinance • Conduct assessment of IHR core capacity • Implement recommendations from IHR core capacity
	• Strengthen the country's capacity to respond to outbreaks	• Develop response strategies to outbreaks • Train and equip national and district rapid response teams • Update district level partners mapping • Refresher training of health worker on outbreak notification and response

D: Vaccine supply, quality and Logistics

Objectives	**Strategies**	**Key Activities**
13. By 2021 wastage rate of BCG would have been reduced to 30% and below, other re-constituted antigens to 10% and below, pentavalent and Pneumococcal to 5% and below	Strengthen vaccine management system	• Conduct Effective Vaccine Management Assessment (EVMA) • Follow up on the recommendations from the EVM improvement plan Improve vaccine management information systems Improve logistics management information system Develop SOPs for vaccine and Logistics management
		Conduct refresher trainings on the use of vaccine management system
14. By the end of 2021, all	Availability of vaccines at all levels at all	Procure routine immunization vaccines for the

health facilities conducting EPI services will be reporting no stock-out of potent vaccines and other supplies	times	country
		Sustain accurate forecasting for vaccines and supplies
		Continue quarterly) and monthly distribution of vaccines and other logistics to districts and PHUs respectively.
	Maintenance of vehicles, motorbikes and boats	• Regular maintenance system in place to ensure the running of vehicles, motorbikes and boats are operational
15. By 2021, all health facilities providing EPI services will maintain good injection safety practice according to national guidelines	Availability of injection safety materials in every district and PHUs	• Sustain vaccine bundling policy in every district.
		• Report on district use of injection supplies
	Establishment of network of incinerators and waste management system	•
		• Establish immunization waste collection/management systems
		• Ensure availability and safety of burners and burning pits for PHUs
The percentage of functional CCE at all levels would increase from the present 80% to 95% by 2021	Advocacy for resource mobilization to implement the EVM Comprehensive Improvement Plan	• Institutionalize quarterly cold chain inventory • Conduct basic and refresher training for technicians on preventive maintenance and repairs • Develop preventive maintenance plan • Conduct regular preventive maintenance • Conduct refresher training for PHU staff on user maintenance • Conduct temperature monitoring and mapping • Procure spare parts • Procure generators and accessories • Establish National Logistics Working Group to monitor implementation of EVM Improvement Plan
By 2021 an additional freezers and solar refrigerators would	Advocacy for resource mobilization	Conduct a comprehensive cold chain inventory Cold chain mapping by location and functionality

have been procured		Procure and install refrigerators Procure and distribute freezers to districts.
By 2021, Temperature Monitoring Device (TMDs) would have been upgraded at national level, and continue to provide the existing ones at district and PHUs levels	Advocacy for resource mobilization	Procure and install one wireless TMD at national cold stores Procure and distribute FT2 to all districts and PHUs with refrigerators
By 2021, additional passive cold chain equipment would have been procured	Advocacy for resource mobilization	Procure and distribute additional passive cold chain equipment to all districts and PHUs
By 2021, additional transportation would have been provided.	Advocacy for resource mobilization	• Procure and distribute utility vehicles to all districts for monitoring, supervision, distribution and maintenance of cold chain equipment • Procure additional utility vehicles for national EPI office to facilitate monitoring, supervision, distribution and maintenance of cold chain equipment • Procure refrigerated vaccine distribution vehicles • Procure and distribute motorbikes to all districts cold chain technicians for maintenance of cold chain equipment • Procure and distribute fiber boats to riverine districts (Kambia, Port Loko, Western Area, Moyamba, Pujehun and Bonthe) to facilitate monitoring, supervision, distribution and maintenance of cold chain equipment

E: Programme Management

Objectives	Strategies	Key Activities
By 2021, the EPI Programme would have been equipped with Conference facilities.	Advocate for resource mobilization	• Procure projector and screen, public address (PA) system, Conference facilities, and professional digital camera. • Upgrade and maintain internet connectivity • Establish Communication (including close user group)
By 2021, EPI coordination with other programmes and MDAs would have improved and maintained	Strengthening of ICC/HSSG for RCH National Immunization Technical Advisory Group (NITAG) Established	• Support coordination meetings to hold regular • Expand membership of coordinating committees • Support ICC/HSSG quarterly meeting • Support the establishment and functionality of NITAG • Support the establishment and functionality of iSCM National Logistics Working Group
By 2021, legislation for immunization would have been ratified.	Advocacy with Law makers	• Orientation of law makers and opinion leaders on the importance of immunization • Support immunization legislation process
By 2021, the EPI programme management is made more effective/strengthened.	Strengthen programme management	• Rehabilitate EPI offices and PHUs • Provide support for maintenance of office buildings • Provide support for payment of utility bills • Conduct operational research and coverage survey

		• Procure office equipment and supplies

Human Resource

Objectives	Strategies	Key Activities
17. By 2021, 90% of vacant PHU posts would have been filled and sustained with MoHS employees	Institutional strengthening and capacity building	• Update the EPI organogram and recruit vacant post • Support Post-graduate training (National and International) for EPI staff at National level
		• Conduct MLM Training, • Conduct RED Approach Training • Conduct Immunization in Practice Training (IIP) • Conduct Vaccines and cold chain Management Training • Support study tours and conferences for EPI staff

Finance (Costing & Financing)

Objectives	Strategies	Key Activities
10 By 2021, funding for advocacy and communication	• Advocacy with decision makers and the community to ensure	• Engage parliamentarians, district councils and traditional leaders for resource mobilization

for routine immunization would have increased from 0% to 20%	resource mobilization and compliance • Involvement of NGO and private sector	• Develop advocacy and communication activities for resource mobilization • Conduct yearly resource mobilization review meetings with the private sector, NGOs and other health partners
16. By 2021, national funding for Immunization activities would have increased by 20%	EPI plan integrated into national budgeting processes to ensure financial sustainability.	Ensure a sustainable financing in the MOHS for vaccines procurement (co-financing) and injection materials.
	Resource mobilization	Mobilize resources to fund key EPI activities.

1.8 MULTI-YEAR WORK PLAN

A: Service delivery

Key Activities	**2017**	**2018**	**2019**	**2020**	**2021**
Develop 14 district, chiefdom based micro-plans for outreach and defaulter tracing	X	X	X	X	X
Strengthen outreach services in 1317 PHUs & trace defaulters	X	X	X	X	X
• Conduct quarterly Community Engagement meetings (FGDs, strengthening of VDCs and CHWs link with services and Stakeholders meeting for participation	X	X	X	X	X
• Engage additional private health facilities staff • Strengthen collaboration with CBOs & CSOs in immunization service	X	X	X	X	X
• Provide logistics support for hard to reach services	X	X	X	X	X
• Conduct facility based micro-planning	X	X	X	X	X
• Conduct monthly review meetings to update data on hard to reach areas	X	X	X	X	X

Key Activities	2017	2018	2019	2020	2021
• Strengthen community (Village Development Committees (VDCs) and Community health workers (CHWs) dialog and participation, in EPI activities.	X	X	X	X	X
• Use of innovative strategies to reach communities to increase uptake of immunization services (e.g. use of mobile phones, community score card and surveillance)	X	X	X	X	X
• Conduct monthly supportive supervision at district level	X	X	X	X	X
• Conduct quarterly supportive supervision by national level to districts and PHUs	X	X	X	X	X
• Provide feedbacks to relevant levels.	X	X	X	X	X
• Conduct regular data analysis and harmonization for action at all levels	X	X	X	X	X
• Conduct National bi-annual National programme review meetings	X	X	X	X	X
• Procure Lap tops, and desk top computers with accessories.			X		
• Conduct EPI quarterly review meetings	X	X	X	X	X
• Develop Immunization Data Quality Improvement Plan	X				
• Conduct data harmonization meetings	X	X	X	X	X
• Monitor the timeliness and completeness of EPI related data (FT-2, DVD MT, Cold chain Inventory,	X	X	X	X	X
• Introduce electronic vaccination data collection system (VaxTrac)	X	X			
• Conduct annual national DQS	X	X	X	X	X
• Conduct quarterly district Data Quality Self-assessments (DQS)	X	X	X	X	X

Key Activities	2017	2018	2019	2020	2021
• Conduct monthly PHU (1317) in-charges meeting in all districts	X	X	X	X	X
• Update, produce and disseminate data management tools		X	X		
• Develop joint plan with other programmes	X	X	X	X	X
• Integrate other services (LLIN, Vitamin A ,Albendazole) with routine immunization during MCHW and SIAs	X	X	X	X	X
• Integrate Intermittent Presumptive Treatment for Infants (IPTI) with routine immunization	X				
• Support follow up training on RED approach strategy for health workers at all levels		X		X	
• Support the Implement the RED approach component	X	X	X	X	X
• Intensify monthly monitoring of RED approach	X	X	X	X	X
• Conduct quarterly data analysis to identify areas for PIRIs	X	X	X	X	X
• Conduct Periodic Intensive Routine Immunization Services (PIRIs)	X	X	X	X	X
• Monitor IPV and Penta 3 coverage	X	X	X	X	X
Training of health staff on Measles Rubella vaccine		X			
• Sensitize politicians and opinion leaders	X	X	X	X	X
• Review EPI policy to include measles rubella	X				
• Introduce key messages on measles rubella vaccination		X			
• Training of health staff on HPV vaccine			X		
• Introduce key messages on HPV vaccine			X		
• Sensitize politicians and opinion leader	X	X	X	X	X
• Review EPI policy to include HPV		X			
• Training of health staff on Hepatitis B 0		X			

Key Activities	2017	2018	2019	2020	2021
vaccine					
• Sensitize politicians and opinion leaders	X	X	X	X	X
• Review EPI policy to include Hepatitis0	X				
• Introduce key messages on Hepatitis0 vaccine		X			
• Support Polio Eradication committees [National Certification Committee (NCC), National Polio Expert Committee (NPEC) and National Containment Task Force (NTF)]	X	X	X	X	X
• Monitor AFP surveillance database and district reporting	X	X	X	X	X
• Monitor active surveillance management tools and provide feedback	X	X	X	X	X
• Monitor and supervise all polio eradication strategies	X	X	X	X	X
• Introduce one dose of Inactivated Polio Vaccine (IPV)			X		

A: Service delivery (contd)

Key Activities	2017	2018	2019	2020	2021
• Conduct Measles Rubella catch up campaign for <15 in 2018		X			
• Conduct Measles Rubella follow up campaign for < 5 in 2021					X
• Sustain the supply of measles vaccine at all levels	X	X	X	X	X
• Continuous sensitization of communities on the need for measles second dose	X	X	X	X	X
• Support defaulter tracing and outreach activities	X	X	X	X	X

• Introduce/switch MR vaccine into routine immunization services by 2018		X			
• Integrate Measles Rubella vaccine SIA with Vitamin A, deworming tablets, etc.)		X			
• Conduct TT/Td vaccination of Non-pregnant women			X		
• Strengthen target vaccination for TT/Td in pregnant women			X	X	X
• Switch from TT to Td in 2019			X		
• Intensify TT/Td immunization in schools	X	X	X	X	X
• Support districts to conduct Active community engagement	X	X	X	X	X
• Support the strengthening of defaulter tracing and outreach	X	X	X	X	X
• Monitor monthly defaulter tracing activities	X	X	X	X	X

B: Advocacy and communications

Key Activities	**2017**	**2018**	**2019**	**2020**	**2021**
• Review and adapt District communication plans to include key messages on RI and SIAs,	X				
• Develop districts communication plans for hard to reach communities	X				
• Increase community convergence meetings (Stakeholders/Partners/Community convergence/VDC meetings)	X	X	X	X	X
• Implement Mass media activities (radio, TV, Drama etc.)	X	X	X	X	X
• Develop Print and Distribute IEC materials	X		X		X
• Conduct House-to-House/Street-to-Street	X	X	X	X	X

announcement/IPC					
• Conduct KAP and other surveys	X		X		X

C: Surveillance

Key Activities	**2017**	**2018**	**2019**	**2020**	**2021**
• Active surveillance in every district	X	X	X	X	X
• Monitoring of IDSR Core indicators at all levels	X	X	X	X	X
• Improve epidemic response time	X	X	X	X	X
• Continue sensitisation and orientation of community health workers	X	X	X	X	X
• Community involvement in surveillance and all RCH activities	X	X	X	X	X
• Orientation of PHUs and community health workers on AEFI • Provide AEFI monitoring tools.	X	X	X	X	X
• Include AEFI in national database for district monitoring	X				
• Monthly monitoring of AEFI data	X	X	X	X	X
• Improve response to AEFIs	X	X	X	X	X
• Establish Regional Public Health Reference Laboratories (RPHRL)		X	X		
• Procure laboratory Equipment and reagents	X	X	X	X	X
• Conduct orientation for Laboratory staff		X	X		X
• Update importation plan as necessary	X	X	X	X	X
• Monitor timeliness, completeness and reliability of data	X	X	X	X	X
• Review public health ordinance	X				X
• Conduct assessment of IHR core capacity		X			X
• Implement recommendations from IHR core capacity	X	X	X	X	X

Key Activities	2017	2018	2019	2020	2021
• Conduct refresher trainings for health workers	X	X	X	X	X
• Develop response strategies to outbreaks	X				
• Train and equip national and district rapid response teams		X		X	
• Update district level partners mapping	X	X	X	X	X
• Refresher training of health worker on outbreak notification and response	X	X	X	X	X

D: Vaccine supply, quality and Logistics

Key Activities	2017	2018	2019	2020	2021
• Conduct Effective Vaccine Management Assessment (EVMA)				X	
• Conduct refresher trainings on the use of vaccine management system		X		X	
• Procure routine immunization vaccines for the country	X	X	X	X	X
• Sustain accurate forecasting for vaccines and supplies	X	X	X	X	X
• Improve vaccine management information systems	X	X	X	X	X
• Develop SOPs for vaccine and Logistics management	X				
• Improve logistics management information system	X	X	X	X	X
• Continue quarterly and monthly distribution of vaccines and other logistics to districts and PHUs respectively.	X	X	X	X	X
• Regular maintenance system in place to ensure the running of vehicles, motorbikes	X	X	X	X	X

and boats are operational					
• Sustain vaccine bundling policy in every district.	X	X	X	X	X
• Report on district use of injection supplies	X	X	X	X	X
• Follow up on the recommendations from the EVM improvement plan	X	X	X	X	X
• Establish immunization waste collection/management systems	X	X	X	X	X
• Ensure availability and safety of burners and burning pits for PHUs	X	X	X	X	X
• Institutionalize quarterly cold chain inventory	X	X	X	X	X
• Develop preventive maintenance plan	X	X	X	X	X
• Conduct basic and refresher training for technicians on preventive maintenance and repairs	X		X		X
• Establish National Logistics Working Group to monitor implementation of EVM Improvement Plan	X				
• Procure generators and accessories			X		
• Procure spare parts	X	X	X	X	X
• Conduct temperature monitoring and mapping	X		X		X
• Conduct refresher training for PHU staff on user maintenance	X		X		X
• Conduct a comprehensive cold chain inventory	X			X	
• Cold chain mapping by location and functionality	X	X	X	X	X
• Procure and install refrigerators	X	X	X	X	X
• Procure and install one wireless TMD at national cold stores	X		X		X
• Conduct regular preventive maintenance	X	X	X	X	X
• Procure and distribute freezers to districts.	X	X	X		

• Procure and distribute FT2 to all districts and PHUs with refrigerators		X		X	
• Procure and distribute additional passive cold chain equipment to all districts and PHUs	X	X	X		
• Procure additional utility vehicles for national EPI office to facilitate monitoring, supervision, distribution and maintenance of cold chain equipment	X			X	
• Procure and distribute utility vehicles to all districts for monitoring, supervision, distribution and maintenance of cold chain equipment	X		X		
• Procure refrigerated vaccine distribution vehicles	X				
• Procure and distribute fiber boats to riverine districts (Kambia, Port Loko, Western Area, Moyamba, Pujehun and Bonthe) to facilitate monitoring, supervision, distribution and maintenance of cold chain equipment		X			
• Procure and distribute motorbikes to all districts cold chain technicians for maintenance of cold chain equipment	X			X	

E: Programme Management

Key Activities	2017	2018	2019	2020	2021
• Procure projector and screen, public address (PA) system, Conference facilities, and professional digital camera.	X				X
• Establish Communication (including close user group)	X				

Key Activities	2017	2018	2019	2020	2021
• Upgrade and maintain internet connectivity	X	X	X	X	X
• Support coordination meetings to hold regular	X	X	X	X	X
• Expand membership of coordinating committees	X	X	X	X	X
• Orientation of law makers and opinion leaders on the importance of immunization	X	X	X	X	X
• Rehabilitate EPI offices and PHUs	X	X	X	X	X
• Support ICC/HSSG quarterly meeting	X	X	X	X	X
• Support the establishment of iSCM National Logistics Working Group	X				
• Support the functionality of iSCM National Logistics Working Group	X	X	X	X	X
• Support immunization legislation process	X				
• Provide support for payment of utility bills	X	X	X	X	X
• Conduct operational research and coverage survey	X	X	X	X	X
• Provide support for maintenance of office buildings	X	X	X	X	X
• Procure office equipment and supplies	X	X	X	X	X

Human Resource

Key Activities	2017	2018	2019	2020	2021
• Update the EPI organogram and recruit vacant post	X				
• Support Post-graduate training (National and International) for EPI staff at National level	X			X	
• Conduct MLM Training,	X				X
• Conduct RED Approach Training		X		X	
• Conduct Immunization in Practice Training (IIP)	X		X		X
• Conduct Vaccines and cold chain Management Training		X		X	
• Support study tours and conferences for EPI staff	X	X	X	X	X

Finance (Costing & Financing)

Key Activities	2017	2018	2019	2020	2021
• Engage parliamentarians, district councils and traditional leaders for resource mobilization	X	X	X	X	X
• Develop advocacy and communication activities for resource mobilization	X	X	X	X	X
• Conduct yearly resource mobilization review meetings with the private sector, NGOs and other health partners	X	X	X	X	X
• Ensure a sustainable financing in the MOHS for vaccines procurement (co-financing) and injection materials.	X	X	X	X	X
• Mobilize resources to fund key EPI activities.	X	X	X	X	X

Table 9 ANNUAL WORK PLAN FOR FIRST YEAR OF PROJECTION (2017)

A: Service delivery

Key Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Develop 14 district, chiefdom based micro-plans for outreach and defaulter tracing	X											
Strengthen outreach services in 1317 PHUs & trace defaulters	X	X	X	X	X	X	X	X	X	X	X	X
• Conduct quarterly Community Engagement meetings (FGDs, strengthening of VDCs and CHWs link with services and Stakeholders meeting for participation	X	X	X	X	X	X	X	X	X	X	X	X
• Engage additional private health facilities staff	X	X	X	X	X	X	X	X	X	X	X	X
• Strengthen collaboration with CBOs & CSOs in immunization service			X			X			X			X
• Provide logistics support for hard to reach services	X	X	X	X	X	X	X	X	X	X	X	X
• Conduct facility based micro-planning	X											
• Conduct monthly review meetings to update data on hard to reach areas	X	X	X	X	X	X	X	X	X	X	X	X
• Strengthen community (Village Development Committees (VDCs) and Community health workers (CHWs) dialog and participation, in EPI activities.	X	X	X	X	X	X	X	X	X	X	X	X
• Use of innovative strategies to reach communities to increase uptake of immunization services (e.g. use of mobile phones, community score card and surveillance)	X	X	X	X	X	X	X	X	X	X	X	X
• Conduct monthly supportive supervision at district level	X	X	X	X	X	X	X	X	X	X	X	X
• Conduct quarterly supportive supervision by national level to districts and PHUs			X			X			X			X
• Provide feedbacks to relevant levels.	X	X	X	X	X	X	X	X	X	X	X	X

Key Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
• Conduct regular data analysis and harmonization for action at all levels	X	X	X	X	X	X	X	X	X	X	X	X
• Conduct National bi-annual National programme review meetings					X						X	
• Conduct EPI quarterly review meetings			X			X			X			X
• Develop Immunization Data Quality Improvement Plan			X									
• Conduct monthly data harmonization meetings	X	X	X	X	X	X	X	X	X	X	X	X
• Monitor the timeliness and completeness of EPI related data (FT-2, DVD MT, Cold chain Inventory,	X	X	X	X	X	X	X	X	X	X	X	X
• Introduce electronic vaccination data collection system (VaxTrac)	X	X	X	X	X	X	X	X	X	X	X	X
• Conduct quarterly district Data Quality Self-assessments (DQS)			X			X			X			X
• Conduct monthly PHU (1317) in-charges meeting in all districts	X	X	X	X	X	X	X	X	X	X	X	X
• Develop joint plan with other programmes		X					X					
• Integrate other services (LLIN, Vitamin A ,Albendazole) with routine immunization during MCHW and SIAs	X	X	X	X	X	X	X	X	X	X	X	X
• Integrate Intermittent Presumptive Treatment for Infants (IPTI) with routine immunization	X	X	X	X	X	X	X	X	X	X	X	X
• Support the Implementation the RED approach Strategy	X	X	X	X	X	X	X	X	X	X	X	X
• Intensify monthly monitoring of RED Indicators	X	X	X	X	X	X	X	X	X	X	X	X
• Conduct quarterly data analysis to identify areas for PIRIs	X			X			X			X		
• Conduct Periodic Intensive Routine Immunization Services (PIRIs)						X						X

Key Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
• Monitor IPV and Penta 3 coverage											X	X
• Sensitize politicians and opinion leaders on Sustainable Immunization Financing	X	X	X	X	X	X	X	X	X	X	X	X
• Finalize the updating of EPI Policy		X										
• Support Polio Eradication committees [National Certification Committee (NCC), National Polio Expert Committee (NPEC) and National Containment Task Force (NTF)]	X	X	X	X	X	X	X	X	X	X	X	X
• Monitor AFP surveillance database and district reporting	X	X	X	X	X	X	X	X	X	X	X	X
• Monitor active surveillance management tools and provide feedback	X	X	X	X	X	X	X	X	X	X	X	X
• Monitor and supervise all polio eradication strategies	X	X	X	X	X	X	X	X	X	X	X	X
• Introduce one dose of Inactivated Polio Vaccine (IPV)											X	

A: Service delivery (contd)

Key Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
• Sustain the supply of measles vaccine at all levels	X	X	X	X	X	X	X	X	X	X	X	X

• Continuous sensitization of communities on the need for measles second dose	X	X	X	X	X	X	X	X	X	X	X	X
• Conduct defaulter tracing and outreach activities	X	X	X	X	X	X	X	X	X	X	X	X
• Intensify TT/Td immunization in schools	X	X	X	X	X	X	X	X	X	X	X	X
• Support districts to conduct Active community engagement	X	X	X	X	X	X	X	X	X	X	X	X
• Support and monitor the strengthening of defaulter tracing and outreach	X	X	X	X	X	X	X	X	X	X	X	X

B: Advocacy and communications

Key Activities	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
• Review and adapt District communication plans to include key messages on RI and SIAs,			X	X	X	X	X	X	X	X	X	X
• Develop districts communication plans for hard to reach communities			X									
• Increase community convergence meetings (Stakeholders/Partners/Community convergence/VDC meetings)	X	X	X	X	X	X	X	X	X	X	X	X
• Implement Mass media activities (radio, TV, Drama etc.)	X	X	X	X	X	X	X	X	X	X	X	X
• Develop, Print and Distribute IEC materials		X	X		X					X	X	
• Conduct House-to-House/Street-to-Street announcement/IPC		X	X	X	X	X	X	X	X	X	X	X
• Conduct KAP and other surveys		X									X	

C: Surveillance

Key Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
• Active surveillance in every district	X	X	X	X	X	X	X	X	X	X	X	X
• Monitoring of IDSR Core indicators at all levels	X	X	X	X	X	X	X	X	X	X	X	X
• Improve epidemic response time	X	X	X	X	X	X	X	X	X	X	X	X
• Continue sensitisation and orientation of community health workers	X	X	X	X	X	X	X	X	X	X	X	X
• Community involvement in surveillance and all RCH activities	X	X	X	X	X	X	X	X	X	X	X	X
• Orientation of PHUs and community health workers on AEFI				X				X				
• Provide AEFI monitoring tools.	X											
• Monthly monitoring of AEFI data	X	X	X	X	X	X	X	X	X	X	X	X
• Procure laboratory Equipment and reagents				X						X		
• Update importation plan as necessary						X						
• Monitor timeliness, completeness and reliability of IDSR data	X	X	X	X	X	X	X	X	X	X	X	X
• Conduct refresher trainings for health workers ON IDSR							X	X	X			
• Update response strategies to outbreaks									X			
• Update district level partners mapping	X											

D: Vaccine supply, quality and Logistics

Key Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
• Procure routine immunization vaccines for the country	X					X						
• Sustain accurate forecasting for vaccines and supplies									X			
• Develop SOPs for vaccine and		X										

Logistics management												
• Improve logistics management information system	X	X	X	X	X	X	X	X	X	X	X	X
• Continue quarterly and monthly distribution of vaccines and other logistics to districts and PHUs respectively.	X	X	X	X	X	X	X	X	X	X	X	X
• Regular maintenance system in place to ensure the running of vehicles, motorbikes and boats are operational	X	X	X	X	X	X	X	X	X	X	X	X
• Sustain vaccine bundling policy in every district.	X	X	X	X	X	X	X	X	X	X	X	X
• Report on district use of injection supplies	X	X	X	X	X	X	X	X	X	X	X	X
• Follow up on the recommendations from the EVM improvement plan	X	X	X	X	X	X	X	X	X	X	X	X
• Maintain immunization waste management systems	X	X	X	X	X	X	X	X	X	X	X	X
• Institutionalize quarterly cold chain inventory			X			X			X			X
• Ensure implementation of preventive maintenance plan	X	X	X	X	X	X	X	X	X	X	X	X
• Conduct basic and refresher training for technicians on preventive maintenance and repairs							X	X	X			
• Establish National Logistics Working Group to monitor implementation of EVM Improvement Plan			X									
• Procure spare parts						X						
• Conduct temperature monitoring and mapping at national level		X										
• Conduct refresher training for PHU staff on user maintenance						X						

• Conduct a comprehensive cold chain assessment and mapping by location & functionality.			X									
• Procure and install refrigerators & Freezers										X		
• Procure and install wireless TMD at national cold stores										X		
• Procure and distribute additional passive cold chain equipment (Cold boxes) for all districts										X		
• Procure additional utility vehicles for national EPI office to facilitate monitoring, supervision, distribution and maintenance of cold chain equipment										X		
• Procure refrigerated vaccine distribution vehicles										X		
• Procure motorbikes for DOOs										X		

E: Programme Management

Key Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
• Provide Communication facilities (including close user group & Internet Connectivity)	X	X	X	X	X	X	X	X	X	X	X	X
• Support regular coordination meetings	X	X	X	X	X	X	X	X	X	X	X	X
• Orientation of law makers and opinion leaders on the importance of immunization							X					

Key Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
• Rehabilitate EPI offices and PHUs										X		
• Support ICC/HSSG quarterly meeting				X				X				X
• Support the establishment & functionality of iSCM National Logistics Working Group			X	X	X	X	X	X	X	X	X	X
• Support immunization legislation process							X					
• Provide support for payment of utility bills	X	X	X	X	X	X	X	X	X	X	X	X
• Conduct operational research and coverage survey							X					
• Procure office equipment and supplies										X		

Human Resource

Key Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
• Update the EPI organogram and recruit vacant post		X										
• Support Post-graduate training (National and International) for EPI staff at National level									X			
• Conduct MLM Training,								X				
• Conduct Immunization in Practice Training (IIP)								X				

• Support study tours and conferences for EPI staff		X			X			X			X	

Finance (Costing & Financing)

Key Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
• Engage parliamentarians, district councils and traditional leaders for resource mobilization						X						
• Develop advocacy and communication activities for resource mobilization			X	X	X	X	X	X	X	X	X	X
• Conduct yearly resource mobilization review meetings with the private sector, NGOs and other health partners			X			X			X			X
• Ensure a sustainable financing in the MOHS for vaccines procurement (co-financing) and injection materials.	X	X	X	X	X	X	X	X	X	X	X	X
• Mobilize resources to fund key EPI activities.	X	X	X	X	X	X	X	X	X	X	X	X

4. COST, BUDGET AND FINANCING FOR EPI CMYP

Although the cMYP covers the period 2017-2021, this section presents the updated budget, financing and financing gap analysis for the EPI programme, based on the expected activities for the period 2017-2021. It will also present different scenarios and identifies strategies that will improve the financial sustainability of the programme.

4.1. Costing the cMYP

4.1.1. Methodology

The methodology used is based on deriving costs of different programme inputs (such as vaccines, personnel, or vehicles needed), and activities to be carried out (such as trainings, etc). The cMYP guidelines developed by WHO and UNICEF as well as the pre-designed costing, financing and gap analysis tool for MYP, supplied by WHO were used.
The programme's costs are derived using variety of costing methodologies, depending on the interventions planned. These include:

- The ingredient approach: based on the product's unit price and quantity needed each year adjusted for by the proportion of time used for immunization. This is used for costing inputs such as personnel, vehicles, etc;
- Rules of thumbs: based on immunization practices, such as a percentage of fuel costs as representative of maintenance costs for vehicles;
- Past spending where lump sum past expenditure is used to estimate future expenditure. For example past cost per child immunized for specific campaigns, training activities, etc.

4.1.2. Inputs into programme costing

The following is a brief summary of the information incorporated.

4.1.2.1. Macro-economic indicators:

Regarding key demographic indicators, the last population census was carried out in 2015 and the current population for 2016 is estimated to be around 7,245,456. The population growth rate is 2% and the births represent 4% of the population (data from the 2004 Sierra Leone Population census). Women of child bearing age represent 22.2% of the population and the infant mortality rate at 92/1000 (2013 DHS).

4.1.2.2. Vaccines & Injection Supplies:

The country uses surviving infants for forecasting for all antigens, apart from BCG where live births is used. Costs are a function of the unit price for individual vaccines, with quantities determined by the target population adjusted for by coverage and wastage objectives.
Key cost related highlights include:

- The country has introduced Pentavalent vaccine in 2007, Pneumococcal vaccine in 2011 and Rotavirus vaccine in 2014,
- The country carried out Measles preventive and reactive campaigns in 2015 and 2016 respectively, and 4 rounds of Polio campaigns in 16.
- Costs for respective doses of antigens and supplies are based on UNICEF prices as supplied by UNICEF Supply Division.

4.1.2.3. Personnel Costs (EPI specific and shared):

About 70% of the personnel for CH/EPI at the national level spend 90% of their time on EPI related activities, while the remaining staff (30%) spends 40% of their time on EPI. On average 6 days per month is spent on integrated supervision.
On the average a total of US$ 2.8 million will be required annually for personnel (including support staff) salaries and allowances for the period 2017 – 2021.

4.1.2.4. Vehicles and Transport Costs:

A total of US$175,000 will be required in 2017 for the procurement/replacement of vehicles, trucks, motorized boats and motorcycles and their maintenance.
Additional maintenance costs were estimated as represented by 15% of fuel expenditure. GAVI Immunization Services Strengthening (HSS) funds for logistics will be used to reinforce programme activities.

4.1.2.5. Cold Chain Equipment, Maintenance and Overheads:

Costs were derived as with personnel and vaccines. In 2015 and 2016 EU, JICA, WB, Polish NATCOM and GAVI funded a considerable number of cold chain equipment (solar refrigerators, cold rooms). The average running cost per unit of cold chain equipment correspond to the average monthly overheads costs (electricity or fuel depending on the type of equipment) and the average maintenance cost corresponds to the average yearly cost of maintenance and repairs of each unit of cold chain equipment.

4.1.2.6. Operational Costs for Campaigns:

The operational costs for campaigns were based on operational costs for past campaigns and include all non-vaccine and injections supplies cost. These include the cost of personnel (per-diems) and other operational costs such as training, transport and social mobilization. The average operational cost per child used for future campaign operational costs were estimated at US$0.5 for polio and US$1.1 for measles.

4.1.2.7. Programme Activities, Other Recurrent Costs

The table below illustrates the estimated costs of the different programme activities to be carried out during the period of the updated multi-year plan from 2016-2021.

Table 10 Programme Activities and other Recurrent Cost

Data Table: Projection Of Future Resource Requirements (Shared Costs Excluded)					
Cost Category	**2017**	**2018**	**2019**	**2020**	**2021**
Routine Recurrent Costs	**US$**	**US$**	**US$**	**US$**	**US$**
Traditional Vaccines	**$399,310**	**$417,258**	**$434,151**	**$451,655**	**$461,214**
Underused Vaccines	**$4,469,280**	**$6,430,968**	**$6,684,608**	**$7,230,140**	**$7,457,848**
New Vaccines	**$269,626**	**$66,635**	**$324,154**		
Injection Supplies	**$237,724**	**$587,278**	**$921,982**	**$961,628**	**$998,110**
Personnel	**$700,728**	**$770,175**	**$805,954**	**$892,461**	**$947,089**
Transportation	**$727,958**	**$761,182**	**$792,504**	**$826,381**	**$840,982**
Other Routine Recurrent Costs	**$3,392,441**	**$3,522,871**	**$3,697,113**	**$3,813,564**	**$3,918,108**
Vehicles		**$86,994**	**$2,185**	**$46,146**	**$95,060**
Cold Chain Equipment	**$1,112,309**	**$631,527**	**$637,334**	**$307,333**	**$330,065**
Other Capital Equipment					
Supplemental Immunization Activities	**$1,747,609**	**$6,654,232**	**$1,854,389**	**$1,910,595**	**$5,795,792**

4.1.2.8. Surveillance Costs:

Costs for surveillance and monitoring activities are based on the 2016 expenditure. Previously, only support to active surveillance by WHO was used to support the disease surveillance programme. This current plan focus will be on Integrated Disease Surveillance and Response (IDSR), case based surveillance for priority diseases as well as quality data management.

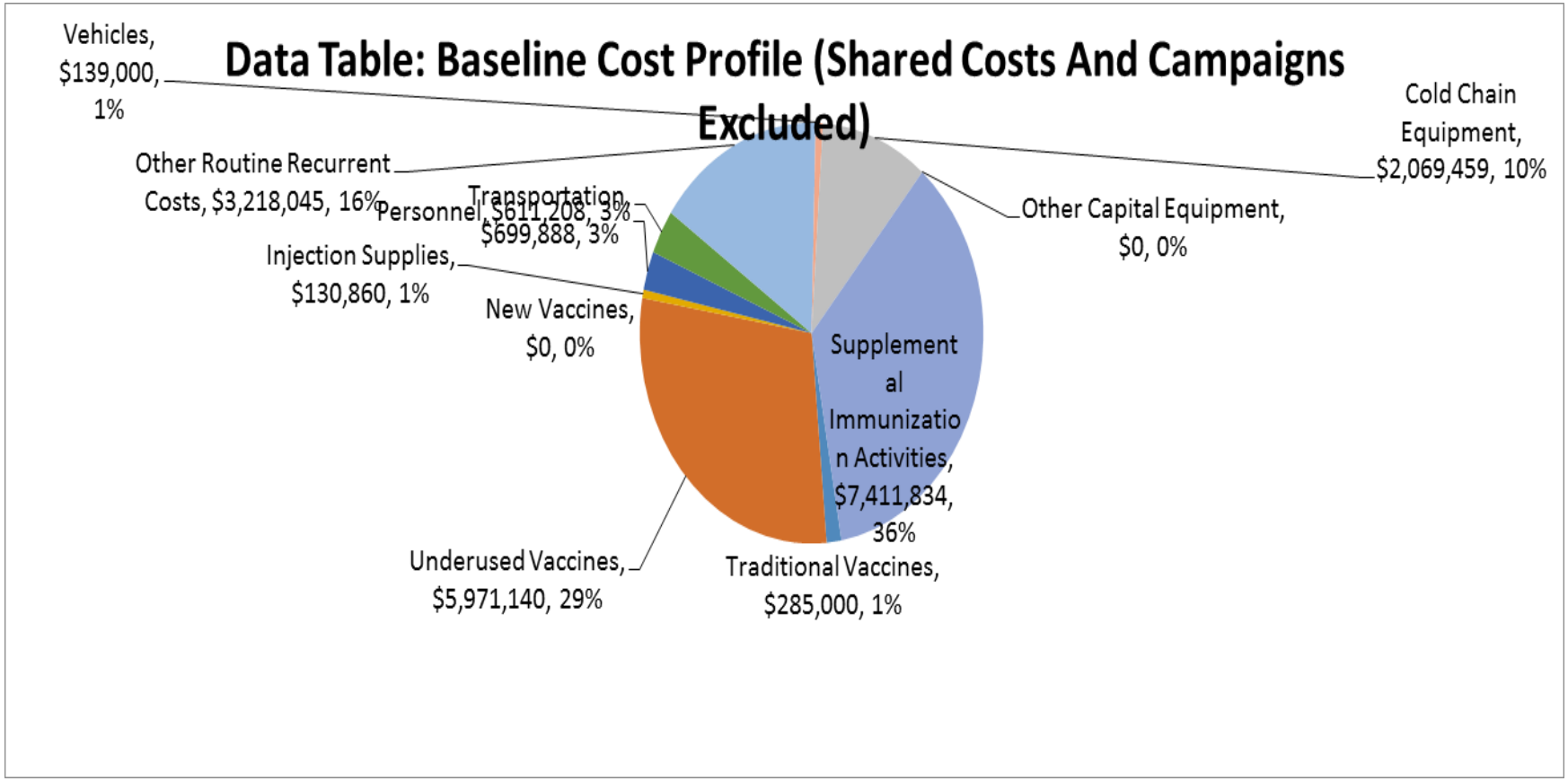
4.1.2.9. Other Equipment Needs and Capital Costs:

Additional costs for capital equipment (incinerators, computers, printers, generators, telecommunication equipment, etc.) were included and costed using the same methodology as with other equipment needs.

4.1.2.10. Building and building overheads:

The average running cost for buildings correspond to the average monthly overheads costs (Electricity, water, telephone, etc).

Fig 5: Baseline Cost Profit (Routine Only)



4.2. <u>Future Programme Costs</u>

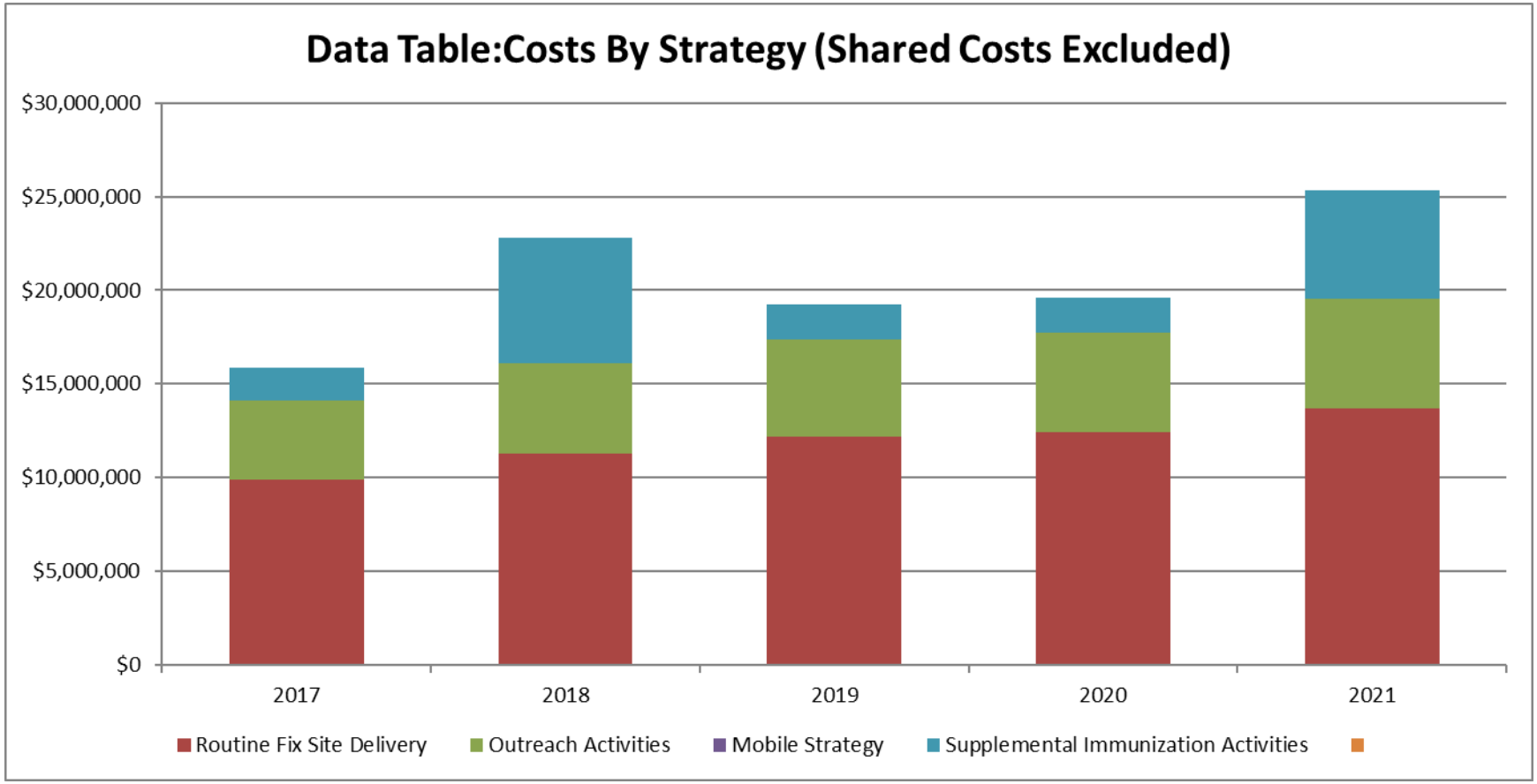
The total expenditure for the EPI programme during the period 2016 - 2021 is illustrated in the table (costing summary) and graph (projection of future resource requirement) below:

Resource Requirements, Financing And Gaps*			**2017**	**2018**	**2019**	**2020**	**2021**	**Avg. 2017 - 2021**
Total Resource Requirements			15,888,187	22,785,519	19,241,494	19,622,127	25,329,940	102,867,267
Total Resource Requirements (Routine Only)			14,140,578	16,131,287	17,387,104	17,711,532	19,534,148	84,904,649
	Per Capita		2	2	2	2	2	2
	Per Dtp Targeted Child		58	64	65	64	68	64
Total Secure Funding			12,411,722	7,530,775	16,250,695	16,594,917	20,943,872	73,731,981
Government			3,185,014	133,918	3,132,508	2,732,588	2,781,753	11,965,781
Sub-National Government								
Gov. Co-Financing Of Gavi Vaccine				643,097	611,145	667,429	688,640	2,610,311
GAVI			5,080,025	6,219,559	6,874,138	7,398,521	7,740,897	33,313,140
WHO			1,927,145		1,996,891	2,025,053	4,730,501	10,679,590
UNICEF			2,219,538	534,201	2,242,694	2,350,139	3,509,837	10,856,408
DFID								
EU								
JICA								
World Bank								
USAID								
CDC								
Canadian Govt					1,393,320	1,421,186	1,492,245	4,306,751

Funding Gap (With Secured Funds Only)			**$3,476,465**	**$15,254,744**	**$2,990,798**	**$3,027,210**	**$4,386,068**	**$29,135,286**
% Of Total Needs			**22%**	**67%**	**16%**	**15%**	**17%**	**28%**
Probable Funding:			1,918,323,206	1,953,586,007	6,475,930	6,998,481	8,520,310	3,893,903,934
Government			1,913,527,121	1,950,886,863	2,615,759	2,695,766	5,531,475	3,875,256,984
Sub-National Government								
Gov. Co-Financing Of Gavi Vaccine								
GAVI			3,436,607	2,699,144	3,860,171	4,240,607	2,925,485	17,162,014
WHO			29,263			31,054	31,675	91,992
UNICEF			29,263			31,054	31,675	91,992
DFID								
EU								
JICA								
World Bank								
USAID								
CDC								
Canadian Govt			1,300,952					1,300,952
Funding Gap (With Secured & Probable Funds)			(1,914,846,741)	(1,938,331,263)	(3,485,132)	(3,971,271)	(4,134,242)	(3,864,768,648)
% Of Total Needs			**-12052%**	**-8507%**	**-18%**	**-20%**	**-16%**	**-3757%**

The determinants of the projected cost 2017-2021are the three main strategies: the routine fixed and outreach strategies as well as campaigns (see graph cost by strategy)

Fig 6: Cost by Strategy



The costs of the programme increase with time.

4.3. <u>Financing for the programme</u>

This section outlines the programme financing trends. The major source of financing for the routine programme during the lifetime of the updated cMYP (2017-2021) is from donor agencies (GAVI, UNICEF, CDC, EU, DFID and WHO), the bulk of the funding is for

new vaccines, traditional vaccines, cold chain and SIAs (Polio & measles rubella) during the period as well as some operational costs. The government will mostly involve in the financing of personnel and overhead costs, some maintenance and co-funding for vaccines. Regarding the cMYP activities, the status of financing is presented in the table below

Table 11: Status of Financing

Resource Requirements, Financing And Gaps*			**2017**	**2018**	**2019**	**2020**	**2021**	**Avg. 2017 - 2021**
Total Resource Requirements			**15,888,187**	**22,785,519**	**19,241,494**	**19,622,127**	**25,329,940**	**102,867,267**
Total Resource Requirements (Routine Only)			**14,140,578**	**16,131,287**	**17,387,104**	**17,711,532**	**19,534,148**	**84,904,649**
	Per Capita		**2**	**2**	**2**	**2**	**2**	**2**
	Per Dtp Targeted Child		**58**	**64**	**65**	**64**	**68**	**64**
Total Secure Funding			**12,411,722**	**7,530,775**	**16,250,695**	**16,594,917**	**20,943,872**	**73,731,981**
Government			**3,185,014**	**133,918**	**3,132,508**	**2,732,588**	**2,781,753**	**11,965,781**
Sub-National Government								
Gov. Co-Financing Of Gavi Vaccine				**643,097**	**611,145**	**667,429**	**688,640**	**2,610,311**
GAVI			**5,080,025**	**6,219,559**	**6,874,138**	**7,398,521**	**7,740,897**	**33,313,140**
WHO			**1,927,145**		**1,996,891**	**2,025,053**	**4,730,501**	**10,679,590**
UNICEF			**2,219,538**	**534,201**	**2,242,694**	**2,350,139**	**3,509,837**	**10,856,408**
DFID								
EU								
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World Bank								
USAID								
CDC								
Canadian Govt					**1,393,320**	**1,421,186**	**1,492,245**	**4,306,751**
Funding Gap (With Secured Funds Only)			**$3,476,465**	**$15,254,744**	**$2,990,798**	**$3,027,210**	**$4,386,068**	**$29,135,286**
% Of Total Needs			**22%**	**67%**	**16%**	**15%**	**17%**	**28%**
Probable Funding:			**1,918,323,206**	**1,953,586,007**	**6,475,930**	**6,998,481**	**8,520,310**	**3,893,903,934**
Government			**1,913,527,121**	**1,950,886,863**	**2,615,759**	**2,695,766**	**5,531,475**	**3,875,256,984**
Sub-National Government								
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GAVI			**3,436,607**	**2,699,144**	**3,860,171**	**4,240,607**	**2,925,485**	**17,162,014**
WHO			**29,263**			**31,054**	**31,675**	**91,992**
UNICEF			**29,263**			**31,054**	**31,675**	**91,992**
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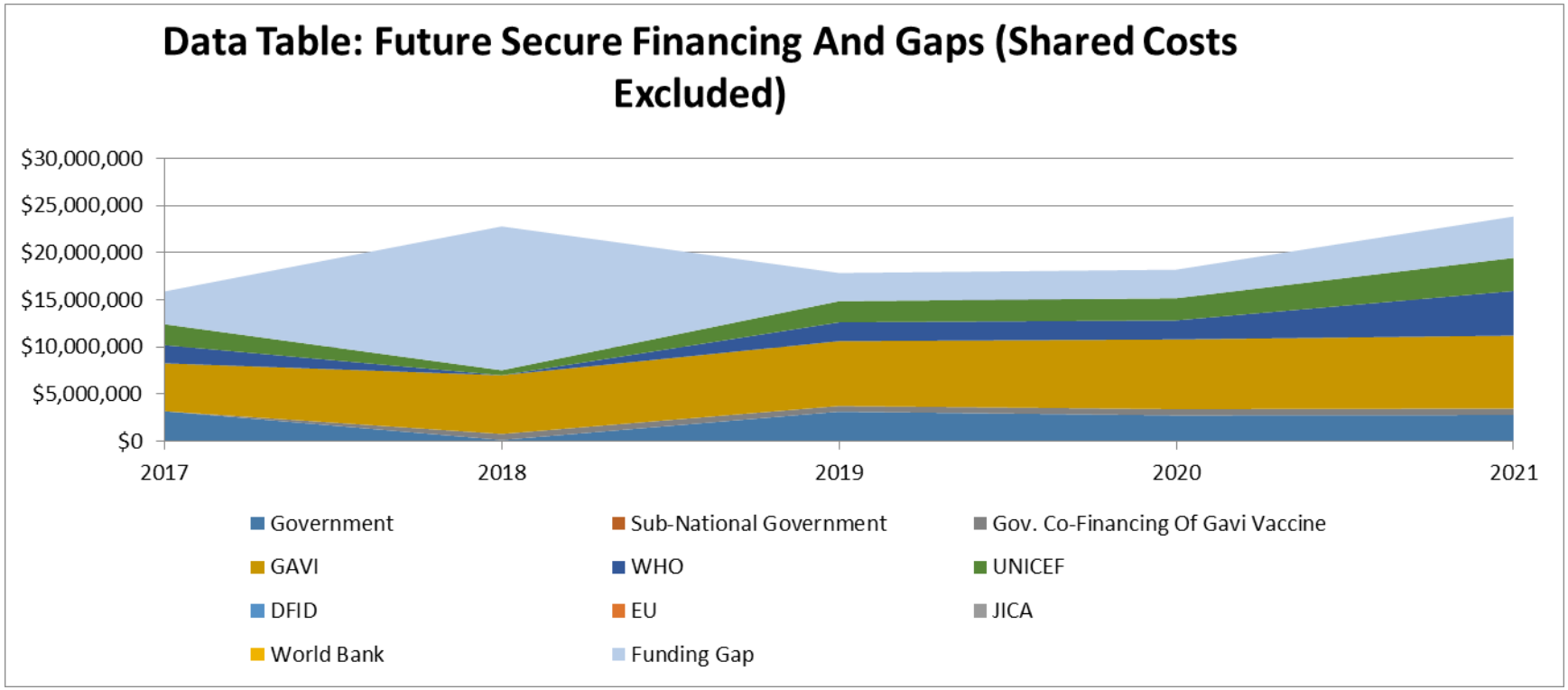
Funding Gap (With Secured & Probable Funds)			**(1,914,846,741)**	**(1,938,331,263)**	**(3,485,132)**	**(3,971,271)**	**(4,134,242)**	**(3,864,768,648)**
% Of Total Needs			**-12052%**	**-8507%**	**-18%**	**-20%**	**-16%**	**-3757%**

Composition of future funding gap 2017-2121

Composition Of The Funding Gap	2017	2018	2019	2020	2021	Avg. 2017 - 2021
Vaccines & Injection Supplies	1	105,282	434,151	(0)	(0)	539,433
Personnel	5	659,685	187,704	772,960	825,198	2,445,552
Transport	727,958	761,182	777,486	806,381	820,982	3,893,990
Activities And Other Recurrent Costs	2,670,875	3,499,443	2,970,851	3,134,884	3,572,129	15,848,182
Logistics (Vehicles, Cold Chain And Other Equipment)	1,112,309	718,520	637,334	353,479	330,065	3,151,708
Supplemental Immunization Activities	(1,552,129)	6,654,232	(2,939,620)	(2,969,115)	(3,103,176)	(3,909,808)
TOTAL	2,959,019	12,398,345	2,067,905	2,098,587	2,445,199	21,969,056

Fig7: Future Secure and Probable Financing and Gaps



4.4. Financial Sustainability Strategies

Based on the above programme financing situation, the financial sustainability strategies will be focusing on the following key objectives:

- Strengthen the Government contribution to EPI,
- Secure the probable financing for the programme,
- Mobilize additional resources for the programme,
- Improve the programme management.
- Improve public private partnership for immunization services
- Advocate with the local government to increase funding for immunization

The respective strategies to be followed up are illustrated in the table below.

Table 12: Objectives, Strategies and Actions on Financial Sustainability

OBJECTIVES	**STRATEGIES**	**ACTIONS**
<u>Objective 1</u>: Strengthen Government	• **<u>Strategy 1.1</u>**: Increase government commitment in	- Maintain a specific budget line for vaccines and supplies in the national budget

		- Increase the contribution of the government for vaccines provision
		- Annually update costing and financing information for EPI activities
	• **Strategy 1.2**: Build the awareness of the Government, line Ministries and Countries authorities on the advantages of the EPI	- Include health focal persons from Ministry of Finance and Planning in ICC for RCH
		- Include discussions on immunization financing in ICC for RCH meetings
		- Provide information on immunization financing in EPI bulletin at least twice/year.
Objective 2: Secure the probable financing for the programme	• **Strategy 2.1:** Secure probable funds	- Discussions on the EPI cMYP to ensure all partners are aware of planned strategies, and financing situation for the programme
		- Discuss with traditional EPI partners during the development of their respective programme of work for the coming years
Objective 3: Mobilize additional resource for the programme	• **Strategy 3.1:** Seek additional funds from EPI partners	
		- Use the opportunity of existing GAVI funding window eg Health Systems Strengthening (HSS) funding
		- Mobilize funds from other l partners, such as DFID and Irish Aid, EU, World Bank and National committees etc to fund planned programme activities and inputs
Objective 4: Improve the programme	• **Strategy 4.1:** Reduce vaccine wastage rate	- Implement holistically the RED for RCH approach in all districts

	• **Strategy 4.2:** Implement policies that reduce missed opportunities such as open vial and multi dose	- Train service providers to implement policy - conduct regular supportive supervision.
	• **Strategy 4.3:** Improve vaccine and cold chain management	- Review child health and CH/ EPI functional structure, endorse by ICC for RCH and fill vacant posts - Put in place a sound logistic management system
Objective 5: Improve public private partnership for immunization services	• **Strategy 1:** advocacy with private service providers	• Hold meetings with private health care providers • Train private health care providers • Provide private health care providers with vaccines and other immunization supplies
Objective 6: increase local Government funding for immunization	• Strategy 1: Advocacy with the local government	• Hold advocacy meetings with local council authorities • Sensitize local councils on the benefits of immunization • Create budget lines in local council budgets for immunization

Table 13: Indicators for monitoring, supervision and evaluation

• **Objectives**	• **Key indicators**
• 1. By 2021, all 13 districts would have achieved Penta3 coverage of at least 95%.	• Routine Penta3 immunization coverage
	• Proportion of districts with 80% or more Penta3 coverage
	• Proportion of districts implementing RED for RCH strategy
	• Number of integrated outreach services conducted per quarter
	• Proportion of private practitioners delivering immunization
2. By 2021, Sierra Leone would have continued to maintain polio free Status.	• % of children under five reached with two doses of OPV
	• Routine OPV 3 coverage
	• Polio surveillance indicators
3. By 2021, measles immunization coverage would have been increased to at least 90% in all 13 districts	• % of districts with at least 80% routine Measles immunization coverage
	• Proportion of children under five reached during SIAs
	• % of districts detecting at least one suspected measles case
	• % of suspected measles cases with blood samples collected
4. By 2016, dropout rate would have been reduced from 15% to <10%.	• Dropout rate
	• Proportion of districts with dropout rate of <10%
5. By 2016, % of advocacy and communication activities funded would have increased from 15% to 80%	• % of funding received for advocacy and communication activities
6. By 2016, all 13 districts would have developed and implementing advocacy and communication's plans on EPI	• Proportion of districts with advocacy plans and implementing it
7**.** By 2021, IDSR would have been implemented in all 13	• % of Health staff trained on IDSR

	• % of health facilities implementing IDSR
	• Availability of a functional public health laboratory in country
8. By 2021 wastage rate of BCG would have been reduced to 30% and below, other re-constituted antigens to 10% and below, pentavalent and Pneumo to 5% and below.	• Wastage rate
	• Proportion of districts with wastage rates of 30% and below for re-constituted vaccines, and 10% below for other vaccines, and 5% and below for pentavalent and Pneumo vaccines
9. By the end of 2021, all health facilities conducting EPI services will be reporting no stock-out of potent vaccines and other supplies	• Proportion of health facilities reporting stock-out of potent vaccines and other supplies
10. By 2021, national funding for Immunization activities would have increased by 5% per year to at least 50%	• % of yearly national funding for immunization
11. By 2021, 90% of PHU vacant posts would have been filled and sustained with MOHS employees	• Number of health workers of various categories trained
	• Number of vacancies filled with MOHS employed staff

Annexes

Annex 1: Characteristics of the Vaccines in Use and recommended storage Temperature

Vaccine	Formulation	Storage Temperature
BCG	**Lyophilized/freeze dried**	**+2º to +8 ^{0}C**
OPV	**Liquid**	**+2º to +8 ^{0}C**
Measles	**Lyophilized/freeze dried**	**+2º to +8 ^{0}C**
Pentavalent	**Liquid**	**+2 to + 8 ^{0}C**
Yellow Fever	**Lyophilized/freeze dried**	**+2 to + 8 ^{0}C**
TT	**Liquid**	**+2 to + 8 ^{0}C**
***Pneumococcal**	**Liquid**	**+2 to + 8 ^{0}C**
****Rotavirus**	**Liquid**	**+2 to + 8 ^{0}C**
Diluents	**Liquid**	**+2 to + 8 ^{0}C**

****Vaccines introduced in early 2011***

*****Vaccine for introduction in 2012***

At the Peripheral health Unit level, all vaccines shall be stored at a temperature of +2 to + 8 ^{0}C for a period not exceeding one month.

Annex 2: Immunization schedule for children 0-11 months old

Age	Vaccine	Other interventions
At birth	BCG, OPV0,	EEBF, GMP
6 Weeks	OPV1, Penta1, Pneumo1, Rota1	GMP,
10 Weeks	OPV2, Penta2, Pneumo2, Rota2	GMP
14 Weeks	OPV3, Penta3, Pneumo3,	GMP, LLINs
9 Months	Measles*, Yellow fever**	Vitamin 'A', GMP etc
15 Months	Measles Second Dose	Vitamin 'A', GMP etc
9-13 Years	HPV (only demonstration programme now for girls 9 years, yet to be introduced)	Other ADH interventions that are yet to be identified

***Pentavalent=DPT-HepB-Hib**

* **Administer Vitamin A at the same time as Measles and Yellow Fever vaccines**

** **Under the EPI, Yellow Fever vaccine in routine services is restricted only to children under one year of age. MOHS shall decide on all changes.**

Annex 3: Immunization Schedule for Tetanus Toxoid for Women of Childbearing Age (15-49 years))

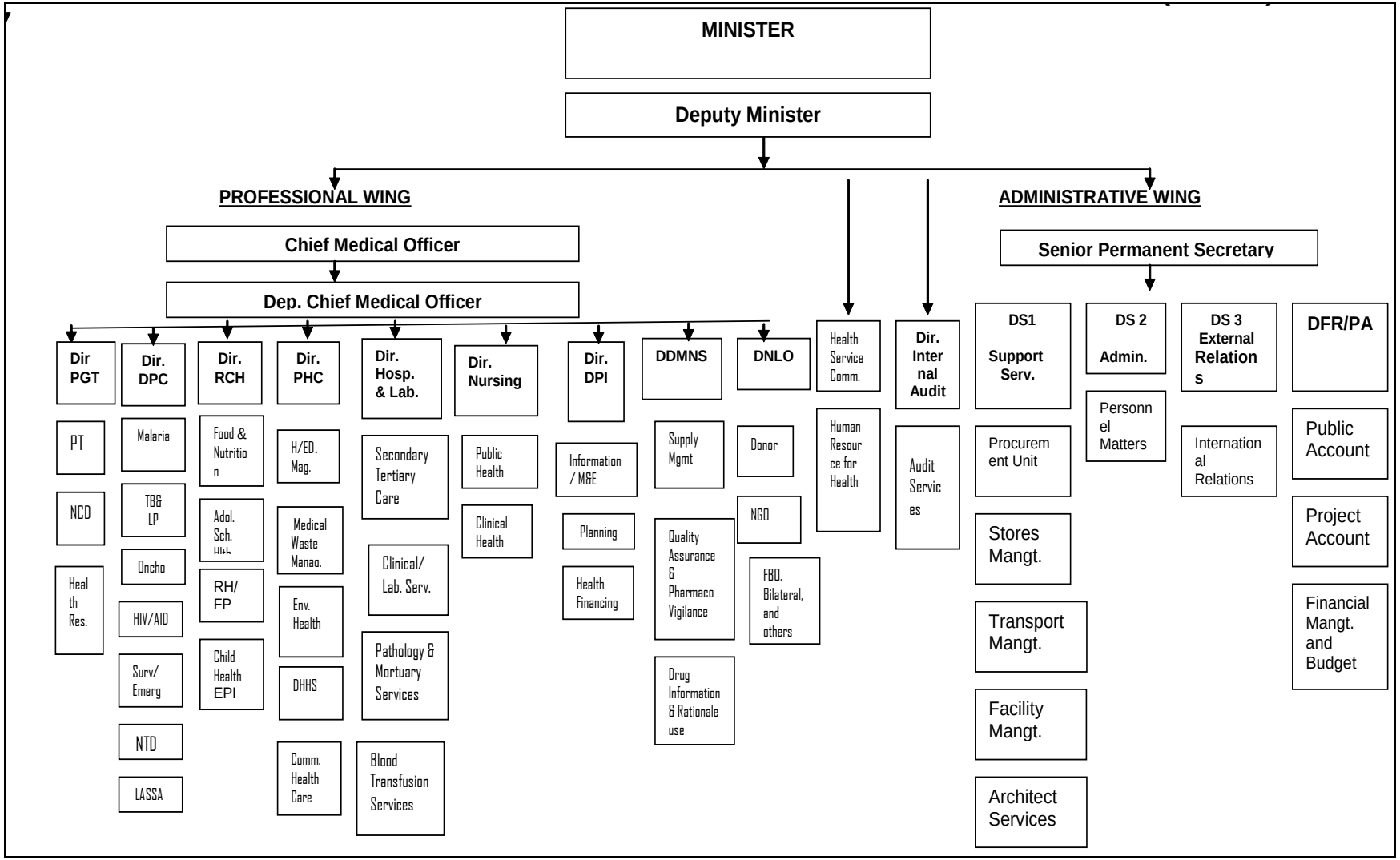
Dose	When to give	Duration of protection
TT1	At first contact with woman of childbearing age, or as early as possible in pregnancy	No protection
TT2	At least 4 weeks after TT1	3 years
TT3	At least 6 months after TT2	5 years
TT4	At least 1 year after TT3 or during Subsequent pregnancy	10 years
TT5	At least 1 year after TT4 or during subsequent pregnancy	All childbearing years

Annex 4: Summary of route of administration of vaccines

Vaccine	Route of administration	Site of administration
BCG	Intradermal	Upper **Right** arm
Pentavalent	Intramuscular	Outer part of **left** thigh
OPV	Oral	Mouth
Measles	Subcutaneous	Upper l**eft** arm
Yellow fever	Subcutaneous	Upper **right** arm
Tetanus Toxoid	Intramuscular	Upper **left or right** arm

Pneumococcal	Intramuscular	Outer part of **right** thigh
Rotavirus	Oral	Mouth

Annex 5 Organogram of the Ministry of Health and Sanitation


MINISTER
Deputy Minister
PROFESSIONAL WING
ADMINISTRATIVE WING
Chief Medical Officer
Dep. Chief Medical Officer
Senior Permanent Secretary
Dir PGT
PT
NCD
Heal th Res.
Dir. DPC
Malaria
TB& LP
Oncho
HIV/AID
Surv/ Emerg
NTD
LASSA
Dir. RCH
Food & Nutritio n
Adol. Sch. Hlt.
RH/ FP
Child Health EPI
Dir. PHC
H/ED. Mag.
Medical Waste Manao.
Env. Health
DHHS
Comm. Health Care
Dir. Hosp. & Lab.
Secondary Tertiary Care
Clinical/ Lab. Serv.
Pathology & Mortuary Services
Blood Transfusion Services
Dir. Nursing
Public Health
Clinical Health
Dir. DPI
Information / M&E
Planning
Health Financing
DDMNS
Supply Mgmt
Quality Assurance & Pharmaco Vigilance
Drug Information & Rationale use
DNLO
Donor
NGO
FBO, Bilateral, and others
Health Service Comm.
Human Resour ce for Health
Dir. Inter nal Audit
Audit Servic es
DS1 Support Serv.
Procurem ent Unit
Stores Mangt.
Transport Mangt.
Facility Mangt.
Architect Services
DS 2 Admin.
Personn el Matters
DS 3 External Relation s
Internation al Relations
DFR/PA
Public Account
Project Account
Financial Mangt. and Budget