Republic of Mozambique

Ministry of Health

National Immunisation Program

Comprehensive Multi-Year Plan (cMYP) 2015 – 2019

August, 2014

Foreword

The Mozambique Extended Programme of Immunization has, since its inception in 1979, been committed to the reduction of infant mortality and morbidity, by the provision of immunization services at all levels, to achieve the long-term objective of the reduction of vaccine preventable diseases. Considerable resources, both financial and human have been invested in the building and development of a health system capable of reaching the entire population with a range of health services.

While the program has been making some progresses over the years in reaching more and more children, as demonstrated through different community surveys indicating that the proportion of one year old children fully immunized has increased from 47% in 1997 to 63% in 2003 and up to 64 in 2008 throughout 2011, programme performance indicators are still poor and very few districts have achieved 80% coverage in all antigens.

The constraints related to weak performance of the EPI Programme in Mozambique were identified and highlighted in several external reviews of the Programme. They include amongst others, issues related to the structural and functional organization of the EPI Programme at all levels, poor Programme data management, inadequate logistic including poor vaccine stock management, insufficient cold chain capacity, poor cold chain management, deficient implementation of RED strategy, mainly due to poor micro planning process and insufficient financial resources and transport, shortage and insufficient training of health staff associated with inadequate supportive supervision at all levels of the health system, amongst others.

This comprehensive Multi Year Plan aims to address the above mentioned weaknesses and the challenges foreseen in the coming years with a view to devising strategies in line with the global vision for immunization (GIVS) and global vaccine action plan (GVAP). Annual achievement targets are set to strengthen the EPI programme in the coming five years, as Mozambique strive to achieve the Millennium Development Goals and the national goals as defined in the Health Sector Strategic Plan (HSSP).

The framework contained in the document provides a schedule of actions, that focus on supporting poorly performing districts to improve performance through integrated efforts, achieving and maintaining polio eradication status, vaccination of wider age groups to ensure control of vaccine preventable diseases such as measles and tetanus, sustaining availability of vaccines and expanding and improving the disease surveillance system, while introducing new vaccines as they become affordable and sustainable.

The Ministry of Health, would like to express its appreciation to donor partners for their commitment to health provision over a wide range of health initiatives and it pledges government's full support in the implementation of this plan and looks forward to partner's continued support as the country strives to improve and achieve the challenging goals set out in the Comprehensive Multi Year Plan.

Executive Summary

This comprehensive Multi Year Plan (cMYP) has been updated first as a planning document for EPI in Mozambique and then as a requirement for extended GAVI support for pentavalent (DPT-HepB-Hib) and PCV, and for introduction of Rotavirus, IPV, MSD and HPV vaccines for the EPI through the Ministry of Health of the Government of Mozambique.

The Multi Year Plan contains a brief review of the country and its economic situation. The organization of health services provision is outlined and a brief history of the EPI programme provided.

A comprehensive review of all aspects of the EPI programme at all levels was conducted and this information was used for developing this cMYP. A thorough and critical analysis of the coverage, service delivery, vaccine supply and logistics, advocacy, surveillance and monitoring, programme management and the ability of the EPI to secure sustainable financing was conducted.

On completion of the situation analysis, an assessment of the Strengths and Weaknesses was conducted to determine how existing best practice could be maintained and where future management initiatives must be undertaken to enhance service delivery.

Using the Comprehensive Multi Year Planning Costing Tool Version 3.7, a full costing and financing of all aspects of EPI was conducted reviewing the cost of vaccines, personnel, transport, cold chain and the provision of shared services with a view to ascertaining estimated total cost for the period 2015-2019.

An analysis of current and future financing and the sustainability of the activities of the EPI were assessed. The conclusion drawn is that the EPI at present is heavily dependent on donor support. For instance, for the period 2015-2019, external funds represent 90% of the total immunization cost and 87% of total vaccine and injection safety supplies cost.

The final section of the cMYP sets out a comprehensive plan for 2015 setting out objectives and strategies for strengthening current service provision by increasing coverage, improvement of the cold chain, reducing dropout, amongst others.

The comprehensive Multi-Year Plan 2015-2019 is linked to the National Health Sector Plan 2014-2019 of Mozambique, in a sense that the HSSP also aims at achieving the MDG, and the cMYP captures and costs strategies and activities that will contribute to the achievement of the MGD4&5. To a great extent the plan is also linked with the Medium Term Expenditure Framework (MTEF), and IHP+, in a sense that they aim at strengthening the health system in general for quality services delivery and achievement of MDGs, and the cMYP sets out the priorities to strengthen EPI service provision at Central, Provincial, District and Health Facility levels. It will be the working document for the Ministry of Health and EPI management with the overall goal of achieving the Millennium Development Goals. It will be from the cMYP that will be drawn the annual EPI working plans and, through the measurement of indicators contained in the document, it will also be used to monitor the progress towards the achievements of several objectives that the government and partners have proposed themselves to achieve within the national immunization program.

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ACRONYMS AND ABBREVIATIONS

AEFI	Adverse Event Following Immunization
BCG	Bacille Calmette-Guérin (tuberculosis vaccine)
cMYP	Comprehensive Multi Year Plan
CDC	Communicable Diseases Control
CBOs	Community Based Organizations
DPT-HepB	Diphtheria, Pertussis, Tetanus Hepatitis B
EPI	Expanded Programme on Immunization
FCH	Family and Community Health
FSP	Financial Sustainability Plan
FIC	Fully Immunized Child
GAVI/VF	Global Alliance for Vaccines and Immunization/Vaccine Funds
GIVS	Global Immunization Vision and Strategies
GDP	Gross Domestic Product
GNP	Gross National Product
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
Hib	Hemophillus influenzae type b
HMIS	Health Management Information System
ICC	Inter-Agency Coordinating Committee
IDSR	Integrated Disease Surveillance & Response
IEC	Information Education and Communication
IHP+	International Health Partnership
IMCI	Integrated management of Child Illnesses
JICA	Japan International Cooperation Agency
MCH	Maternal & Child Health
MOH	Ministry of Health
MNT	Maternal Neonatal Tetanus
NHL	National Health Laboratory
NIDs	National Immunization Days
OPV	Oral Polio Vaccine
PMBS	Paediatrics Bacterial Meningitis
PHC	Primary Health Care
PROSAUDE	
PRSP	Poverty Reduction Strategy Paper
RED	Reach Every District
RH	Reproductive Health
SIAs	Supplementary Immunization Activities
STDs	Sexually Transmitted Diseases
SWAP	Sector Wide Approach Programme
TT	Tetanus Toxoid
TNA	Training Needs Assessment
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization
WPV	Wild Polio Virus

1. INTRODUCTION

1.1 Country profile

Mozambique is located in the south-eastern strip of the African Continent. It shares borders with Tanzania, Malawi, Zambia, Zimbabwe, Swaziland and South Africa. With a population growth rate of 2.14% and a population density of 25.6 inhabitants per square km, the country's current estimated population (2013) is approximately 24.4 million according to projections from the 2007 census. It is a young population, with 45% of inhabitants under 15 years. About 54% of the population lives below the poverty line with an average life expectancy of only 48 years. The national average illiteracy rate is 60% with 39.4% for males and 71.3% for females.

Despite the economic growth at an annual rate of 8%, Mozambique is still one of the poorest countries in the world with a per capita GDP of $422.8 (INE, 2011). For instances, in 2012, Mozambique recorded a GDP growth of 7.4%. However, the same year Mozambique ranked 185 out of 187 in the Human Development Index report, classifying it as one of the world's poorest countries.

Health sector allocations in 2012-2013 were 7% of the national budget of the Government of Mozambique. In 2013, Mozambique finalised the new Health Sector Strategic Plan for 2014-2019, a policy document covering and prioritising all areas of the health sector. However, there is an annual funding gap of approximately USD 200 million to implement the new PESS.

1.2 Epidemiological Profile

Mozambique has an epidemiological profile that is typical of developing countries, with significant levels of infant malnutrition and predominance of infectious diseases. Neonatal, Infant and under-five mortality is 30/1000, 64/1000 and 97/1000, respectively, according to DHS 2001. Neonatal complications or infection, malaria, diarrhoea, pneumonia and AIDS account for more than 80% of all deaths of children under five in Mozambique. Approximately 34% of child deaths occur during the first month of life – the new-born period due to, primarily, birth asphyxia, new-born sepsis and pre term birth. (Black et Al. - Global, regional, and national causes of child mortality in 2008: a systematic analysis, The Lancet, 2010). Chronic malnutrition increased between from 36% in 1997 to 43% in 2011 (DHS 2011). A child born in Zambézia province has two times the chance of dying during her/his first 5 years of life than a child born in Maputo city.

Maternal mortality has shown a substantial reduction from an estimate of more than 1,000 maternal deaths per 100,000 live born (LB) in 1990 (Maternal Death UN Report 2005) to 408 per 100,000 LB (DHS, 2011).

Adults also suffer. They are admitted in hospitals or the overwhelming majority die of malaria, AIDS, other sexually transmitted infections, tuberculosis, anaemia, intestinal and vesical parasitosis, asthma, diabetes and many other diseases (MISAU, 2012).

The concurrency of natural disasters and the vulnerability of the population make them remain prone to epidemical diseases, with emphasis on cholera, dysentery and other diarrhoeal diseases.

1.3 National Health System

The health system in Mozambique is composed by the public sector, the private for profit, and the non-for profit private sector. The Public Sector, which is the National Health System (NHS) is the main provider of health services nationwide. At central level, it plays the stewardship role in defining policies, developing strategic plans, resource mobilization and allocation as well as developing cooperation relations.

The private sector is comprised of the Private-Not-for-Profit (PNFP) health services providers – mainly CSOs with strong ties to the public sector – and Private for Profit (PFP) providers that are few and almost exclusively in urban areas. Service providers at the community level partially cover some basic health needs where there are no NHS facilities. Traditional healers remain the main practitioners outside the health system.

The Ministry of Health oversees 11 provincial health directorates and 148 district health, women and social welfare directorates that supervise and follow up the implementation of health care provision in 1392 health units (MISAU, 2013). The NHS is organised into four levels of care. Levels I and II implement the Primary Health Care (PHC) strategy and serve as referral points for clinical conditions that require attention by higher levels of care. Level III and IV health facilities provide secondary and tertiary healthcare services.

In general, PHC remains the dominant strategy of health intervention to reduce the high rates of morbidity and mortality due to transmissible diseases. Only 60% of the population had access to health services in 2010 (Misau, Relatório de Balanço da Implementação do PES 2011, 2012). Outreach is provided as an extension of PHC services in an effort to increase access to priority health services in hard to reach areas.

1.4 Health Financing

The State Budget (OE) in the health sector consists of the ordinary revenues of the state and direct budget support, and the Common Fund - fund for budget support to the health sector, inserted in the Sector Wide Approach (SWAp), which is applied in the same mechanisms than OE. The weight of health in total government expenditure has declined in relative terms, from

nearly 14% in 2006 to about 7% in 2011 (REO 2006, 2011), although health remains a priority of the Government of Mozambique.

The second source of funding is the vertical funds, intended to support the fight against specific diseases. Of these, the funds of the United States Government (USG) and the Global Fund to Fight HIV, TB and Malaria (GF) represent over half of the total financial resources of the sector, and are often used in the form of contracts with NGOs, or in kind (IFE 2012).

Finally, the third source of funding is private spending, which accounted for about 13% of total spending, representing payments made to private providers, pharmacies and co-payments for services in the National Health System (NHS). This source also includes medical assistance, which deducts 1.5% of basic salary to civil servants and is used in the NHS Health. Funding through the insurers are not yet properly explored, despite its rapidly growing in recent years (PESS, 2014-2019).

In Mozambique, the total expenditure on health has increased consistently over the years and is estimated to have represented 6.2% of GDP in 2009, or about 1,000 MT (US $27) per capita. However, this level of funding is still far below regional averages and recommendations of the WHO and the World Bank to finance a basic package of health services.

In recent years there has been a growing trend of total expenditure on health, with an increase from US $ 402 to US $ 759 million from 2007 to 2012. This growth was driven in part by the considerable increase in OE funds, but mainly by the increase of external funds more specifically vertical projects (Off budget), which more than doubled between 2007 and 2012.

Although, overall, the funding has shown an increasing trend in recent years, the Mozambique Health Sector still has a major dependence on external resources, being important to draw attention to the fact that a proportion of state budget (SB) comes directly from the Partners as well as the Balance of Payments. According to the Survey on Foreign Funds 2012 and Activity Reports and Budget Execution, the State Budget (OE) had a smaller contribution (36%) compared to donors / development partners (including funds PROSAUDE, on budget and off budget) which accounted for 64% of spending on health in 2012.

The costing exercise of the National Health Sector Strategic Plan (PESS) 2014-2019, which provides the essential financial needs in order to fulfil the goals of coverage of health services and the system itself, showed that the financial requirements for the implementation of the PESS 2014-2019 amount to US $ 7.81 billion. Meanwhile, the scenario of internal and external funds for the period of execution of this PESS drawn from the main planning documents of the ministry (State Budget & the MTEF) and the information provided by the partners through the external funds survey (IFE), shows a financial gap of US $ 1.47 billion for the entire duration of the PESS.

Meanwhile, it is expected that the investment for the public health programs will grow 23% in the 2014-2019 period, being that the maternal and child health program (21%), malaria program (22%), nutrition program (16%) and EPI program (14%) the ones bearing the greater weight in the total costs (PESS 2014-2019).

A successful Sector Wide Approach (SWAp) Programme, the cornerstone of the health sector's relationship with partners, is in place since 2000. Despite a well-coordinated SWAp and with the emergence of many new health initiatives, the need for improving donor harmonization and alignment has been recognized by all health partners. Issues like late disbursements, unpredictability of funding and lack of sustained long term financing agreements, agency specific reporting mechanisms and resistance of agencies to be coordinated remain some of the challenges to be addressed. The new memorandum of understanding between common fund partners and MoH removed in year triggers for disbursements as one of the efforts to simplify the flow of development aid (NHA, October 2010).

1.5 Human Resources for Health

The country's health system faces a chronic shortage of critical inputs for health service provision, which has a negative impact on the availability of services and the quality of health, particularly in rural areas (PESS, 2014-2019). There are approximately 34,500 health workers of which 3.2% are physicians. Few facilities have a complete core team and there are major quality gaps in the health workforce in remote areas (Misau, Relatório de Balanço da Implementação do PES 2011, 2012).

Mozambique has one of the lowest health worker densities in Africa, with less than 0.3 health workers per 1,000 population. It has only 0.03 doctors and 0.21 nurses per 1,000 population, lower than most neighbouring countries (WHO Annual Report, 2006).

Health staff distribution around the country still shows considerable regional asymmetries. This human resources crisis has been recognized as a major constraint towards attaining the health related millennium development goals. In order to address this workforce crisis, the MoH has agreed on an ambitious and comprehensive National Human Resources for Health Development Plan, 2008-2015. The plan contemplates pre-service training and recruitment as well as in service training of human resources to strengthen management and improve access to quality service delivery at various levels of the system.

2. THE MOZAMBIQUE EXPANDED PROGRAMME ON IMMUNIZATION

2.1 Program profile

Mozambique Expanded Program on Immunization was launched in 1979 under the Primary Health Care Program, with the main objective of reducing mortality and morbidity from diseases that can be prevented by vaccination. Over the years, immunization program has benefited from government and political commitment at all levels.

Within the Ministry of Health, EPI is a unit in the Department of Health Promotion within the National Directorate for Health Promotion and Disease Control. The central level sets policies, standards and priorities, builds capacity, coordinates activities with partners, mobilises resources, and procures vaccines and injection safety materials in coordination with the Centre for Pharmaceuticals and Medical Supplies (CMAM). It also monitors and provides technical support to all provinces. In turn, the provinces are responsible for capacity building, monitoring, supervision and technical support to the districts. The districts and their health facilities are responsible for planning, management and delivery of EPI services. At the district level, immunization is part of primary health care and is integrated into the child survival activities. Various communities are involved in mobilizing community members bringing their children for immunization.

The community involvement in immunization services is enhanced by the active participation of community members through non-governmental organizations and other community based organizations. These partners remain valuable in ensuring support to the program in term of transport, cold chain investment, supportive supervision and social mobilization for immunization.

The antigens offered in the immunization program include TT for pregnant women, and eventually women of child bearing age (WCBA), and BCG, OPV, Measles, pentavalent (DPT-HepB-Hib) and PCV for less than one year of age. The Hepatitis B component was introduced in 2001, the Hib component in 2009 and PCV vaccine in 2013, all under GAVI support. The country plans to introduce Rotavirus and IPV in July 2015 and Measles Second Dose (MSD) in October 2015. Since May 2014, the country has been piloting HPV demo project in three districts in order to learn lessons in preparation for the national scale up starting in 2016. The demonstration project is financed by both GAVI and the Government of Mozambique. Lastly, there are plans to introduce measles/rubella (MR) vaccine countrywide also in 2016. AD syringes were introduced in 2001 under GAVI support Phase I, and are used in every vaccination session, be it in fixed posts, outreach or mobile brigades as well as campaigns. The immunization schedule in Mozambique for vaccines currently provided in the program and to be introduced soon is shown in Table 1.

Table 1. Mozambique Immunisation Schedule for Infants and Pregnant women after IPV, Rotavirus and measles second dose introductions

Immunisation for infants			Immunisation for pregnant women and WCBA		
Age	Visit	Antigen	Visit	Interval	Antigen
Birth	1	BCG, OPV0	1	0 (as earlier as possible)	TT1
6 weeks	2	DPT-HepB-Hib1, PCV1, OPV1, *Rota 1*	2	4 weeks after 1st dose	TT2
10 weeks	3	DPT-HepB-Hib2, PCV2, OPV2, *Rota 2*	3	6 months after 2nd dose	TT3
14 weeks	4	DPT-HepB-Hib3, PCV3, OPV3, *IPV*[1]	4	1 year after 3rd dose	TT4
9 months	5	Measles First Dose	5	1 year after 4th dose	TT5
18 months	6	*Measles Second Dose (MSD)*	-	-	-
6-59 m	Every 6 m	Vitamin A Supplement		All post-natal mothers	Vit A Supplement

[1] In case the child arrives to the vaccination service after 14 weeks of age, the IPV will be administered at the first encounter after 14 weeks.

The program focuses on children under one year of age and pregnant women. Other groups such as under 5, under 15 and women of child bearing age are also targeted, within the framework of the accelerated disease control or elimination and eradication, to achieve the global targets of polio eradication, elimination of maternal and neonatal tetanus, and accelerated measles control. The targeted population for routine immunization and SIA's and their respective percentage estimated using the 2007 census assuming a growth rate of 2.14% is as per Table 2.

Table 2: Estimated target population for EPI 2015-2019

	2015	2016	2017	2018	2019
Population	25,727,911	26,423,623	27,128,530	27,843,933	28,571,310
New-borns (Births)	1,106,271	1,136,187	1,166,497	1,197,258	1,228,535
Surviving Infants	1,035,470	1,063,471	1,091,841	1,120,634	1,149,908
6-59 months	4,219,377	4,333,474	4,449,079	4,566,405	4,685,695
< 5 years	4,399,473	4,518,440	4,638,979	4,761,313	4,885,694
Pregnant Women	1,286,396	1,321,182	1,356,427	1,392,197	1,428,566
Child Bearing Age Women	6,406,250	6,579,482	6,755,004	6,933,139	7,114,256

*Women of Child Bearing Age include pregnant women. If the latter is not taken into account, then the percentage of WCBA will be 19.9

2.2 The EPI Mission, Goal and Objectives

The **Mission** of the EPI is to enhance the lives of the people of Mozambique by protecting them from and striving to eliminate the suffering caused by vaccine preventable diseases.

The **Goal** is to protect all mothers and their children less than five years of age from vaccine preventable diseases.

The **Objective** is to reduce infant mortality, morbidity, and disability, using the best vaccines and medical technologies and safety practices available.

To achieve these goals and objectives, the Programme focus on three major areas, namely strengthening immunization, conducting supplemental immunization activities and sustaining a sensitive disease surveillance system within the Integrated Disease Surveillance and Response framework.

2.3 Situation Analysis of the National Immunization Programme

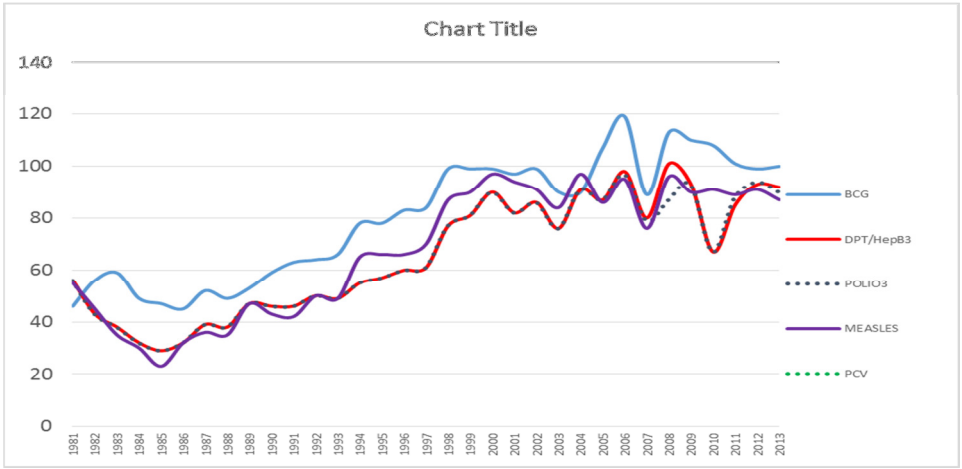
2.3.1 Service Delivery

In 2013, immunization services were offered in approximately 1392 health centres, which represented 92% of health unities in the existing health network with fixed vaccination sites. However, only 60% of the country population is served by the existing health network. In order to reach the unreached, the country introduced new outreach strategies, namely monthly health days in 2000 and most recently, the Reach Every District (RED) strategy. However, its implementation countrywide has been challenging due to limitation in funds availability. Additionally, the country started in 2008 the implementation of the National Mother and Child Health Week, taking place twice a year countrywide that offers integrated mother and child health services in addition to immunization.

2.3.2 Routine DPT3 Coverage

According to data from the Health Information System (DIS), vaccination coverage for different antigens provided in the NIP increased from 50% in some instances reaching 100% or more between 1981 and 2013 as shown in the graphic below (figure 2). This apparent high coverage has been justified in several ways: the population base used to calculate the target groups is smaller than the real, or there is an over-reporting of cases (the same child may be counted twice (Outreach and regular HF data.), or children are vaccinated outside the target group and included in the numerator.

Figure 1: National coverage of BCG, DPT/HepB3, Polio 3, measles and PCV from 1981-2013



Source: National EPI database (1981-2005) and JRF (2006-2013)

Meanwhile, data from DHS 2003 and DHS 2011, showed that immunization coverage was 87.4% and 89.6% for BCG, 71.6% and 74.6% for DPT3, 69.6% and 74.3% for POLIO3, 76.7% and 81.5% for Measles, and 63% and 64% for fully immunized, respectively. Further, DHS 2011 found that 4.8% had received no vaccinations at all (2.4% in urban vs. 5.6% in rural areas). The overall dropout rate between BCG and DPT3 in 2011 was of 16.4%.

Table 3: EPI Coverage through Surveys, DHS 2003, MICS 2008 and DHS 2011 by Province

	DHS 2003					MICS 2008					DHS 2011				
Province	BCG	DPT3	OPV3	Measles	Fully Im	BCG	DPT3	OPV3	Measles	Fully Im	BCG	DPT3	OPV3	Measles	Fully Im
Niassa	81.4	**54.6**	**52.2**	**51.9**	**46.6**	91.3	74.9	75.4	74.9	**56.2**	92.6	82.6	83.3	87.7	76.9
Cabo-Delgado	85.3	**68.9**	**66.4**	**80.2**	**57.9**	93.2	88.2	86.9	83.8	70.5	95.1	**68.1**	76.3	80.6	58.8
Nampula	83.5	**61.8**	**62.4**	**69.1**	**53.9**	82.2	**63.5**	**63.0**	**67.1**	**51.0**	**88.4**	**75.1**	**69.2**	83.4	**66.3**
Zambezia	**71.9**	**53.0**	**50.0**	**63.3**	**44.7**	**75.1**	**61.7**	**60.2**	**61.7**	**46.8**	**84.0**	**60.3**	**56.8**	**71.5**	**47.3**
Tete	88.3	**63.6**	**59.9**	**72.0**	**55.0**	**83.0**	**55.5**	**54.0**	**60.0**	**34.2**	**88.7**	79.9	**72.0**	**75.8**	**58.0**
Manica	93.1	**73.6**	**68.5**	81.5	**61.6**	87.0	75.4	**72.8**	**69.2**	**58.3**	97.0	76.6	77.2	**80.3**	**64.6**
Sofala	86.2	77.1	73.8	**74.7**	63.9	93.7	81.2	81.3	82.9	72.4	95.3	85.3	85.1	87.4	78.4
Inhambane	99.1	93.6	93.3	92.2	90.6	98.3	90.5	91.3	86.9	79.8	96.2	81.8	76.6	86.4	64.7
Gaza	97.1	90.4	88.0	91.7	82.3	97.3	89.4	89.9	83.4	73.9	92.7	89.0	85.9	85.6	76.3
Maputo Provincia	100.0	98.0	97.0	95.2	92.5	90.1	87.4	87.2	87.4	81.9	99.4	96.7	90.9	98.1	87.9
Maputo Cidade	99.7	97.0	94.2	96.9	91.3	97.7	89.5	86.2	93.0	81.8	96.4	90.1	80.7	95.4	76.7
National	**87.4**	**76.1**	**69.6**	**76.7**	**63.3**	**87.5**	**74.1**	**73.3**	**74.1**	**60.1**	**91.1**	**76.2**	**73.2**	**81.5**	**64.1**

Mozambique does not disaggregate vaccination data into sexes, however, differences in coverage between boy and girls are not remarkable (DPT3 coverage of 74.4 for males and 73.8 for females in DHS 2003 and DPT3 coverage of 76.2 and 76.1 respectively in DHS 2011).

Equitable access to vaccination in Mozambique seems to be linked to distance to health facilities, and level of education of mothers. A low population density of 25.8 persons per square kilometre at national level means long distances to health facilities for many people in rural area, where an estimated 70% of the Mozambican population live. The Demographic Health Survey from 2011 shows that there are differences with regards to place of residence and degree of literacy. For example, children living in rural areas have 72.3% DPT3 coverage as compared to their mates in urban areas, where the coverage is 86.3%. Southern provinces (Maputo City, Maputo Province, Gaza and Inhambane) and Sofala in central zone have consistently had coverage above 80% for all antigens. On the other hand, Nampula, Zambézia, Tete and Manica are the worst performing provinces, with coverage level consistently below 80% for all antigens, except BCG, and also below the national average (table 3).

Moreover, DPT3 among children for mothers with secondary level education was 85.6%, with primary level education was 76.9%, and with no education was 71.5%. This may account for some of the gaps in the current EPI communication strategy targeting people with low education level or no school education at all. The outreach services to reach these populations also need to be strengthened, and strengthening equal access to vaccination is a key component of the EPI program. This is particularly reflected in the advocacy, communication and social mobilization chapter.

2.3.3 Data Quality Assessment

Several studies conducted to assess the quality of data produced by the program, such as the DQA (Data Quality Audit) conducted in 2002, DQS assessment conducted by provinces in several districts between 2010 and 2012, found poor data quality management linked to reliability of data produced, the lack of regular analysis and use of data, issues of data accuracy, completeness, timeliness and consistency between different levels, poor filling out of the vaccination registry book and record keeping, uncertain denominator at the health facility level, amongst others. The verification factor in most of these assessments was situated below the recommended minimum score of 80%. Moreover, there are concerns about large fluctuations in reported coverage from year to another at district level, reflecting low data reliability and poor data management (EPI cMYP 212-2016).

2.3.4 Effective Vaccine Management Assessment and PIE

EVMA in 2009 and 2012 found that the EPI faces logistic and supply chain management challenges, such as weak forecasting and quantification skills to prevent wastefulness, over-stocking and/or stock outs; limited skills in logistic and supply information system management. For instances, according to the findings of the last effective vaccine management assessment conducted in May 2012, there is vaccine stock out at service delivery level, mainly due to poor vaccine management at provincial and district levels. In the same assessment, the stock management systems and procedures scored 65% for provincial level vaccine store (PVS), 51% for district level vaccine store (DVS) and 38% for health facility level. Vaccine stock outs and / or over-stocks was observed in almost all provincial and district vaccine stores (PVS & DVS) and in 12 of 17 (71%) of health facilities evaluated. At district and health facility, the vaccine management practices need to be improved in terms of temperature recording, calculation of vaccine wastage rate and adequacy of stock records.

Table 4: Effective vaccine management assessment results, May 2012

			Mean (%)			
Item no.	EVM code	Criteria	Central level	Provincial level	District level	Health facility level
1	E1	Vaccine arrival	71	N/A	N/A	N/A
2	E2	Temperature	39	62	69	52
3	E3	Storage Capacity	78	52	49	75
4	E4	Building, equipment & transport	84	72	59	71
5	E5	Maintenance	62	62	48	48
6	E6	Stock management	59	65	51	38
7	E7	Distribution	76	41	43	60
8	E8	Vaccine management	38	46	61	71
9	E9	MIS, supportive functions	53	62	56	N/A

Moreover, lack of key logistic amenities like vehicles for distribution and supplies and radio communication equipment for coordination of essential commodity distribution also impair efficient service delivery at all levels. For instance, the low carrying capacity of vaccine from the central to the provincial level, especially to the Central and Northern provinces, where vaccines are transported by airplane (limited cargo space for vaccines in airplanes) is one the constraints affecting vaccine delivery. Distribution of vaccines and other essential MCH supplies from provincial to district levels is also highly affected by lack of transport at these levels. As of 2012, only 27% (3/11) of provinces had a reliable transport system for distribution of vaccine and other essential MCH supplies to districts, benefiting 38% of districts countrywide (55 districts in those provinces out of 148 countrywide).

Furthermore, there is also limited computerization of LSCM information system that impairs establishment of reliable LSCM information system and efficient LSCM. Only 22/148 (15%) of districts have computers accessible to EPI and other MCH programs at district level.

In addition, an assessment of the capacity of the cold chain throughout the country indicates insufficient storage capacity at the central level and in 8 of 11 provinces, and in 67 of 148 districts to accommodate the new vaccine (HPV) to be introduced in 2016 (EPI cMYP 2015-2019).

Lastly, to date, there is no cold chain technician at the district level in Mozambique, despite this being indispensably necessary personnel to handle unforeseen problems in the cold chain in the district vaccine stores and health facilities. The whole country depends on the 11 cold chain technicians assigned to provincial vaccine stores (EVAM, May 2012).

2.3.5 Immunization safety

A 2004 injection safety assessment and the 2006 EPI review indicated overstock of AD syringes and safety boxes, overflowing pierced and opened safety boxes, gaps in the knowledge of health workers about the national waste management policy, inappropriate waste management practices including burning and burying as methods of waste disposal often in close proximity to the community. Both studies found a 100% use of AD syringes and safety boxes in all immunization sessions, be it static or mobile. PIE studies in 2012 (Pos-pentavalent introduction) and 2013 (Pos-PCV introduction), found that despite improvement in health workers' waste management knowledge, inappropriate waste management practices still persist due to lack of fuel or inappropriately protected incinerators. In addition, AD syringes and safety boxes are not bundled with vaccine resulting overstock. No low or stock out of injection safety supplies was reported.

2.3.6 Communication for routine immunization and new vaccine introduction

In late 2012, the Ministry of Health with the support of UNICEF Mozambique, carried out a qualitative formative research study in the four provinces of Zambézia, Tete, Cabo Delgado and Inhambane to evaluate the knowledge, attitude and practices on routine immunization and

introduction of the new vaccine PCV-10 with the purpose of understanding barriers and beliefs of the families toward immunization. The findings included:

1) Women feel that vaccination is positive because it improves children's health and prevents illness in general. However, the immune-preventable diseases that women know best are polio, measles and tetanus. Moreover, when women talk about diseases, they do not describe the symptoms, an indication that they do not know the diseases being prevented by the specific vaccines.

2) Community opinion leaders' knowledge about vaccinations does not differ much from that of the women but when requested they are willing to mobilize the community to participate in any specific health outreach activity.

3) Activists are trained in a vertical manner, and often know very little about vaccination, while community health workers (APEs) have received integrated training, know about immune-preventable diseases and have a formal role in the community, representing the health system in remote areas.

4) The health workers interviewed found difficult to talk about vaccination due to linguistic and conceptual problems, and at the moment of the study they had no visual communication aids. Health workers currently tend to take their own initiatives, whether in organizing the vaccination queue or taking measures on non-adherence. They talk about vaccines immediately before vaccination activities begin, and then reduce to a minimum the interpersonal communication with the people who bring children to be vaccinated. Finally, they tend to be rude to caregivers when they ask for information, as if the fact of being questioned means doubting their capacity and authority.

5) Gender issues and the limited involvement of men in vaccination have negative effects on adherence, aggravating existing structural problems such as distance from home to the health unit or outreach team gathering point.

Selected recommendations emerged from the study including the following:

From the service provision side:

1) Diversify communication on vaccination opportunities, by increasing and improving the quality of interpersonal communication, especially by health workers.

2) Reinforce the capacity building plan for CHW (APEs) and health promotion activists on immunization on top of other health areas.

3) Conceive visual IEC communication materials that associate each disease with each vaccination to ensure standardization of messages from health workers. In addition, also conceive simple audio-visual on vaccination in local languages to be used in the health centers during the health promotion sessions and by the Institute of Social Communication multimedia units to be used in community video debated sessions in rural areas.

5) Develop a monitoring and evaluation plan for communication on health that includes indicators on interpersonal communication, to assess the interpersonal capacities and techniques of health workers.

6) Ensure that in the communication interventions implemented for the National Health Week, there should be always a clear remainder to the routine immunization schedule

From the community engagement side:

1) Involve men in vaccination through dedicated health education sessions for them, focusing on topics such as men's responsibility for children and the economic advantages of vaccination, as men are considered heads of family and breadwinners.

2) Disseminate best practices of men's collaboration with women, to show that it can be a reality (positive deviance) and to create motivation in the community.

3) Involve more community leaders in vaccination promotion, to enable the participation of other opinion leaders like teachers, religious leaders and traditional healers who currently feel that they do not have the necessary authorization to do so.

4) Work with traditional healers, so that they assist in the production of communication material, helping to identify correspondence between traditional and biomedical diseases and, should this exist, helping to find a definition for any "new disease" that uses terminology that can be easily understood.

Form the above described, it can be depicted that the challenges faced by routine EPI include:

1. Poor program data management (reliability of produced data, lack of regular data analysis and utilization);
2. Inadequate logistic including poor vaccine stock management, inadequate vaccine delivery to different sub-national levels due to transport issues, insufficient cold chain capacity and poor cold chain management;
3. Deficient implementation of RED strategy, mainly due to poor micro planning process and lack of funds and transport for outreach/mobile brigades activities, associated with poor health coverage (60% pop with access to a health facility); and
4. Weak EPI communication strategy targeting rural communities.
5. Minimal focused technical supervision at all levels;

In addition, there is very weak interagency coordinating committee (ICC) to monitor performance and advocate for routine EPI.

2.4 Activities under implementation and way forward to address the gaps on routine immunization performance

Some initiatives already in place or to be implemented in order to address some of the barriers identified above are describe below:

To address poor **data management**, the MOH with technical and financial support of its EPI partners, mainly WHO, UNICEF and FDC, started the implementation of the recommendations contained in the Data Quality Assessment (DQA). These activities included revision of EPI data collection tools, to capture all relevant immunization information at the service delivery point (health facility and outreach) with regards to children fully immunized by gender, and a separation of doses of vaccine administered by strategy (fixed or mobile); the tally sheets were put together to form a book, one for fixed vaccination post and the other for outreach; the summary sheets were also put in the format of a book, in duplicate, so that the original sheet is sent to district level and the duplicate remains at the health facility book. The same at district and provincial levels; all these measures were to address the issue of losing data and provide better record keeping, for future data verification.

Other measures put in place were the introduction of the EPI vaccination recording books, for defaulter tracing purposes and to help to check if children older than 1 year of age are being included in the numerator; attribution of a unique ID code to each child attending immunization services. This code was also recorded in the child's health card. This way, it might be easy to identify if the child being immunized belongs or not to a given health catchment area and weather to include or not this child in the numerator, or send the data recorded to the appropriate health catchment area where the child belongs for them to include it in their numerator (note that the child is vaccinated wherever he/she presents for vaccination. It is juts the record that is sent to the appropriate health catchment). These measures will help to minimize the inclusion of out of target group or out of health catchment area children in the numerator, which gives a sensation of good coverage, masking high numbers of un-immunized or under-immunized children.

In addition, training of health staff on the use of data for local decision taking, as contained in the monitoring and evaluation component of the RED strategy, as well as regular feedback to lower levels are also part of the activities under implementation. Further, some training on the use of data quality self-assessment tool (DQS) in order to enable districts to regularly assess and improve the quality of data they produce has also been conducted. However, due to limitation of resources, these trainings have chiefly targeted managers at provincial level, with the expectation that they would cascade down the training if they were able to mobilize resources locally, or use this knowledge to conduct on the job training of district managers during supportive supervisory visits to districts. Few districts (55 out of 148) have benefited of this training in the last two years. Again, due to fund constraints, both training and supportive supervision at all levels are occasional, and almost with no follow up visits to help staff integrate knowledge and skills acquired during the training into their routine or to make sure they implement the recommendations of the supervisory visits conducted.

The country has planned part of the GAVI-HSS funds to support training of health staff on quality EPI data management, including the use of the DQS tool, with focus at district and health

facility levels, while making available resources for national and provincial levels to conduct regular supportive supervisory visits to lower levels.

With regards to **EPI logistic**, for instance, with support of WHO and UNICEF, MOH has been implementing the recommendations of the various assessments conducted in EPI (EVMA in 2009 and 2012, CC evaluation in 2013 and PIE in 2012 and 2013). Thus, Logistic constraints related to vaccine management are being tackled through the implementation of the vaccine stock management tools (SMT) at national and provincial levels. There has also been training of all national and provincial level EPI managers and logisticians on the use of the district vaccine and data management tool DVDMT. For instance, EPI Manager and logisticians (4) at national level, EPI managers (11) and logisticians (11) at provincial level and district EPI managers in 80/148 districts have been so far refreshed on EPI logistics (Cold chain and vaccine management, including the implementation of the vaccine stock management tools – SMT and DVDMT), between 2013 and May 2014. However, lack of funds have prevented further training opportunities targeting other district EPI managers, while no follow up visits were conducted to help the few districts trained to incorporate DVDMT into their routine practice. WHO guidelines on vaccine management and CC management were adapted and made available to EPI vaccine deposits at all levels. Vaccine temperature monitoring devices, fridge tags were also purchased and distributed.

In addition a long term cold chain update plan (CCUP) was developed in 2013, which include a depleted cold chain rehabilitation plan, maintenance plan and the plan to expand the cold chain over the years to meet the requirement of the existing and new vaccines to be introduced in the coming years. As already explained above, this plan is under implementation through funds made available by USAID through UNICEF, and part of the HSS funds, for which the country has been approved, have been allocated to cover the funding gap in the mentioned plan.

HSS funds have also been allocated to cover training of EPI staff on vaccine and CC management at district and health facility levels (including the training of CC assistants to handle unforeseen problems in the cold chain vaccine stores and health facilities), and to provide resources for national, provincial and district levels to conduct supportive supervisory visits to lower levels. HSS funds have also been allocated to procure transport and communication equipment in order to mitigate supply distribution and coordination constraints.

In what concerns **RED strategy**, there will be a need to strengthen partnership for immunization by revitalizing the Interagency Coordinating Committee for Immunization (ICC) or through integration of the EPI issues in the agenda of other already existing and functional committees, for instance, the committee for maternal and child health. Establishment of clear linkages and exploring possible synergies between the EPI and other preventive programs will avoid duplications and allow a much better and efficient use of the available resources. This will allow to progressively increasing the number of districts implementing RED with adequate resources.

Furthermore, districts will be provided support in the process of micro plan development to reach every child and its implementation. With technical support from central level, provinces will select priority districts, which will benefit of an additional financial support through funds mobilized centrally from different partners, in order to support the implementation of RED

strategy. Furthermore, districts will be subject of a close and regular follow up of the activity implementation. Their performance will also be monitored and assessed for identification of constraints and gaps in order to provide any additional support as necessary. For this to happen, the central level will build capacity at provincial and district levels as appropriate. So far, 55 out of 148 districts have undergone training on RED/DQS for improved micro planning and data quality.

In what relates to **EPI communication** the country is developing a strategy that will address the communication gap for rural areas. Indeed, in terms of geographic discrepancies in utilization of EPI services, rural areas have less access as compared to urban areas. Meanwhile, in terms of discrepancies in education, mothers with low school education level or no school education at all, have less chances of having their children vaccinated as compared to mother with high school education. While access problems due to geographic barriers are will be addressed through RED approach (now REC – reaching every community) as explained above, those due to lack of adequate information will be addressed through development of a specific communication strategy that target low school education communities, in order to empower these communities to participate in the promotion of healthy behaviours, including using available preventive health services, such as compliance with immunization schedule, exclusive breastfeeding in the first 6 months, ante-natal care, family planning, and so on.

In addition, even though no differences are found among girls and boys concerning utilization of immunization services as demonstrated above, because we are aware that gender aspects must be addressed, as a general rule the country always tries to address gender imbalances in its strategies to promote utilization of available health services. In this context, the MoH will involve Civil Society Organizations involved in the fight for increasing the opportunities of girls to education and health and community based organizations that have deep linkages with communities in the development of the communication and community engagement components of the social mobilization plan for promoting utilization of immunization services. With support of these organizations, specific communication strategies will be developed, targeting influential people in the communities such as parents, guardians, teachers, students (of both sexes), community leaders and political leaders in order to guarantee that all layers of society are convinced that it is important and cost-effective having both girls and boys immunized against vaccine preventable disease.

In addition to this, the MoH has just approved and launched in August 2013 the community involvement strategy, which amongst others, includes the training and deployment of community health workers (APE's) as a means to extend the health services to remote communities. These structures will be used to establish a permanent linkage between health sector and communities. The EPI will seize this opportunity to strengthen EPI communication and utilization.

It is expected that the strategies above described would help to address discrepancies due to both illiteracy issues above described and gender imbalances where they might occur.

With regards to **monitoring and supervision**, provinces and districts will be closely monitored for implementation of core EPI routine activities, with emphasis to the areas of constraint above identified, and their performance assessed for identification of gaps in implementation, in order

to guide prioritization and focus of supportive supervisory visits to districts. This will be done through either monthly or quarterly reports shared at the provincial and national level (as appropriate), and also through the implementation of clear plans of supervision with use of standard checklists and action points.

Most recently the national immunization technical advisory group (NITAG) has been created, but its role is essentially to advice the Minister on EPI matters, rather than monitoring performance and support resource mobilization for immunization and integrated vaccine preventable disease surveillance.

2.5 Vaccine Preventable Disease (VPD) Surveillance and Disease Control Activities

2.5.1 Polio Eradication Initiative Activities

2.5.1.1 Routine OPV Coverage

Similarly to all other antigens provided in the NIP, routine OPV coverage has witnessed a steady increase from the early 1990s, from 50% to above 90% in 2013. However, although administrative reports of immunization coverage tend to be rather high (93.8% and 92% OPV3 coverage national level, with only 6% (9/148) and 20% (14/148) districts with OPV3 below 80% in 2012 and 2013, respectively), there are concerns about the reporting system and fluctuations in reported results, reflecting poor program data management. Therefore, different surveys conducted by accredited independent institutions such as the National Institute of Statistic have been used to assess program performance more realistically. Indeed, these surveys have consistently found low OPV3 coverage (bellow 80%) at national level, with northern and central provinces presenting the worst performance level, below the national average, while the southern provinces are the best performing, that is, above the national average (figure Z and table X above).

For instance, the last two surveys conducted in 2008 and 2011, the MICS 2008 and DHS 2011 found a national OPV3 coverage of 75.4% and 73.2%, respectively, indicating a small decrease in coverage. Southern provinces (Maputo City, Maputo Province, Gaza and Inhambane) and the central province of Sofala have consistently had coverage above 80%. Six out of 11 provinces were below 80% in DHS 2011. Meanwhile, Nampula, Zambézia, Tete and Manica were consistently below 80% in both surveys (MICS 2008 and DHS 2011). Nampula and Zambézia have together 40% of total country's population (20% each), while Tete and Manica have 9% and 7% respectively. Altogether, theses 4 provinces bear 56% of country's population, representing a huge potential for occurrence of polio outbreaks, be it imported or circulating vaccine derived poliovirus (cVDPVs). In fact, in 2011 there were detected 2 cases of circulating vaccine derived poliovirus in 2 districts (Milange and Mopeia) of Zambézia province.

2.5.1.2 NIDs and sub-NIDS

Mozambique conducted its last national immunization days (NIDs) in 2005, in the context of the Polio Eradication Initiative (PEI), having achieved 97% administrative coverage and 95% through surveys. In 2011, two rounds of sub-NIDs were conducted in response to cVDPVs reported in Milange and Mopeia districts, in Zambézia province. Vaccination campaign was conducted the affected districts and additional 13 surrounding districts. While administrative coverage was between 90% and above (and sometimes above 100%) in all districts, post-SIA survey found a coverage of 60% in the 1st round and 83% in the 2nd round.

2.5.1.3 AFP/Polio Surveillance

Since the commencement of polio eradication initiative in Mozambique in 1996 and with the take-off of AFP surveillance in 1997 supported by the WHO-accredited inter-country polio lab in South Africa, the country has made steady progress in terms of core performance indicators. AFP surveillance performance indicators reached certification standard (non-polio AFP rate of 1.0/100,000 children less than 15 years and 80% stool adequacy rate) in 2003 and have since been maintained at that level. Since the country started lab confirmation of polio cases over 14 years ago, no indigenous or imported wild poliovirus has been reported. However, 2 cases of circulating vaccine derived poliovirus (cVDPVs) were detected in 2011, in 2 districts of Zambézia province.

After WHO Regional Office for Africa (AFRO) recommendation in June 2005 that countries in the region should attain a minimum operational non-polio AFP rate of 2.0/100,000 in children less than 15 years, as against the previous certification rate of 1.0/100,000, Mozambique only managed to attain this new rate in 2009. AFP stool adequacy rates have been at the minimum 80% or above since 2004 except in 2008 when it fell below this minimum. However, progress made at the national level for AFP surveillance masks sub-optimal performance at the sub-national level. For instance, in the last three years, while the NPAFP rate at national level has been situated around 3.0/100,000 children < 15 years, and stool adequacy around 87%, at sub-national level Maputo province has been the most problematic in terms of low AFP performance (NPAFP rate of 1.5 and 1.7 in 2011 and 2013, respectively). Meanwhile, stool adequacy was below 80% in at least one of these years in 5 out of 11 provinces, namely Maputo province, Gaza, Inhambane, Cabo-Delgado and Sofala. This is concerning noting that WHO recommends that for certification, countries should achieve and maintain AFP/Polio standard performance indicators at national and sub-national levels for at least three consecutive years.

It is equally of concern that the country has high number of AFP cases not classified with > 90 days after onset. This is consistent with the findings of the last surveillance review in 2010, and reflects the inability of the NPEC to conduct regular meetings to classify AFP cases due constant absence of members.

Table 5: AFP surveillance for 2011, 2012, and 2013

2011

Analysis based on data received by:				06-Jan												
	Population Under 15	Cases in Database	No. AFP cases	Annualised Non-polio AFP rate*	AFP cases with 2 stools within 14 days of onset*		CLASSIFICATION STATUS							Inadequate stools	No Lab Results >30d after onset
					(n)	%	Confirmed	VDPV	Compatible	Discarded	Unclassified	Denotified	>90 days		
Cabo Delgado	793887	23	23	2.9	22	96%	0	0	0	20	3	0	3	1	1
Maputo City	530152	12	12	2.3	11	92%	0	0	0	8	4	0	4	1	5
Gaza	592078	25	25	4.2	19	76%	0	0	0	16	9	0	9	6	4
Inhambane	631010	29	29	4.6	21	72%	0	0	0	18	11	0	11	8	9
Manica	752417	18	18	2.4	15	83%	0	0	0	13	5	0	5	3	2
Maputo Province	650081	11	11	1.5	10	91%	0	0	1	8	2	0	2	1	2
Nampula	2038411	42	42	2.1	39	93%	0	0	0	29	13	0	13	3	12
Niassa	636821	39	39	6.1	32	82%	0	0	0	32	7	0	7	7	5
Sofala	835925	40	39	4.5	32	82%	0	0	1	28	10	1	10	7	3
Tete	961965	25	25	2.6	24	96%	0	0	0	18	7	0	7	1	7
Zambezia	1947223	53	51	2.6	49	96%	0	2	1	39	9	2	8	2	7
Mozambique	**10369971**	**317**	**314**	3.0	**274**	**87%**	**0**	**2**	**3**	**229**	**80**	**3**	**79**	**40**	**57**

* Indicate global certification criteria

* Non-polio AFP rate is per 100 000 children 0-14 years

2012

Analysis based on data received by:				04-Jan											
	Population Under 15	Cases in Database	No. AFP cases	Annualised Non-polio AFP rate*	AFP cases with 2 stools within 14 days of onset*		CLASSIFICATION STATUS							Inadequate stools	No Lab Results >30d after onset
					(n)	%	Confirmed	VDPV	Compatible	Discarded	Unclassified	Denotified	>90 days		
Cabo Delgado	808800.8	34	34	3.3	25	74%	0	0	8	23	3	0	1	9	4
Maputo City	537354.5	12	12	2.3	12	100%	0	0	0	11	1	0	0	0	1
Gaza	604842.8	24	24	3.9	21	87%	0	0	1	23	0	0	0	3	1
Inhambane	642007.8	23	23	3.7	17	74%	0	0	0	18	5	0	4	6	5
Manica	780908	19	19	2.5	19	100%	0	0	0	19	0	0	0	0	0
Maputo Province	677898.9	23	23	3.2	18	78%	0	0	2	20	1	0	0	5	2
Nampula	2091528	46	45	2.2	44	98%	0	0	0	43	2	1	2	1	3
Niassa	662574.2	42	42	6.2	36	86%	0	0	2	38	2	0	1	6	3
Sofala	856677.6	44	44	5.0	35	80%	0	0	2	37	5	0	3	9	7
Tete	1002837	25	25	2.2	23	92%	0	0	3	20	2	0	1	2	4
Zambezia	1999892	51	51	2.6	48	94%	0	0	0	47	4	0	1	3	5
Mozambique	**10665322**	**343**	**342**	3.1	**298**	**87%**	**0**	**0**	**18**	**299**	**25**	**1**	**13**	**44**	**35**

* Indicate global certification criteria

* Non-polio AFP rate is per 100 000 children 0-14 years

2013

Analysis based on data received by:				31-Dec											
	Population Under 15	Cases in Database	No. AFP cases	Annualised Non-polio AFP rate*	AFP cases with 2 stools within 14 days of onset*		CLASSIFICATION STATUS							Inadequate stools	No Lab Results >30d after onset
					(n)	%	Confirmed	VDPV	Compatible	Discarded	Unclassified	Denotified	>90 days		
Cabo Delgado	823555.8	24	24	3.0	20	83%	0	0	0	21	3	0	3	4	0
Maputo City	544496.8	11	11	2.1	11	100%	0	0	0	10	1	0	1	0	1
Gaza	615532.1	18	18	3.0	15	83%	0	0	0	14	4	0	4	3	1
Inhambane	652986.5	16	16	2.5	11	69%	0	0	0	13	3	0	3	5	0
Manica	810111.2	21	21	2.6	19	90%	0	0	0	20	1	0	1	2	1
Maputo Province	706992.8	12	12	1.7	11	92%	0	0	0	12	0	0	0	1	0
Nampula	2145349	53	53	2.5	49	92%	0	0	0	52	1	0	1	4	1
Niassa	689381.1	36	34	5.0	31	91%	0	0	0	30	4	2	4	3	4
Sofala	877955	49	49	5.7	34	69%	0	0	0	40	9	0	9	15	1
Tete	1045032	33	33	3.2	32	97%	0	0	0	33	0	0	0	1	0
Zambezia	2053358	62	62	3.1	59	95%	0	0	0	58	4	0	4	3	2
Mozambique	**10964750**	**335**	**333**	3.1	**292**	**88%**	**0**	**0**	**0**	**303**	**30**	**2**	**30**	**41**	**11**

* Indicate global certification criteria

* Non-polio AFP rate is per 100 000 children 0-14 years

As depicted in the last in depth surveillance review conducted in 2010, the challenges in the surveillance system are primarily related to poor understanding among health workers about the importance of surveillance and their roles in monitoring health service delivery. For instance, most Health facility surveillance focal persons and health workers including clinicians have limited knowledge and skills for VPD surveillance due to lack of training and inadequate supportive supervisory visits which do not provide written feedbacks. In addition to that, support for VPD surveillance from the national and provincial level is limited by competing priorities at those levels and limited access to means of transportation particularly at the provincial level. Furthermore, active surveillance visits were found to be limited in scope, frequency and quality due to lack of prioritization of health facilities, the non-inclusion of private facilities and limited involvement of community focal persons.

Other constraints are weak community based surveillance system, poor data management (timeliness, completeness, missing data and lack of regular data analysis and utilization) and absence of minimal focused technical supervision at all levels. In addition, there is inability of the NPEC to form quorum for its meetings to classify AFP cases due to constant absence of members, leading to delays in final classification of AFP cases. In general, there is deficient functioning of the national polio certification committee (NCC) and its subcommittees, to monitor performance and advocate for VPD surveillance system.

Lastly, the surveillance network is structured mainly around public health facilities, that is, not involving private facilities.

In the light of the above findings, the review recommended among other steps for making the system sensitive, the urgent expansion of the surveillance network to include key private facilities and community focal persons; strengthen the knowledge base and skills of health workers for VPD surveillance; prioritize health facilities for active surveillance visits and supportive supervision and improve access to means of transport by provincial surveillance officers to support active surveillance at the district and health facility levels.

In order to address the constraints and the gaps in the surveillance system, the operational plan to improve surveillance of vaccine-preventable diseases integrated in the current cMYP considers the recommendations made during the different EPI and surveillance reviews and related missions in 2010, 2011 and 2012. Most of the recommendations are yet to be addressed because of financial constraints. However, some activities being implemented as per program reviews recommendations, are listed below.

The importance of a solid surveillance system has been addressed through training of surveillance focal persons and health personnel on disease surveillance, which included case definition and proper case based investigation procedures, reporting, data management, feedback, as well as epidemic preparedness and response. In addition, there has been sensitization of clinicians in the hospitals on disease surveillance with emphasis on case detection and reporting of priority and epidemic prone diseases. However, this has been very limited in scope.

Furthermore, a plan of action regarding disease prevention and control were developed and clear surveillance activities were outlined for disease undergoing eradication, elimination and control, with particular emphasis on AFP and Measles surveillance, and building on the recommendations of the comprehensive surveillance system reviews above referred. Provinces and districts are closely monitored for implementation of core surveillance activities such as active surveillance, supportive supervision, monitoring, provision of feedback, and action using surveillance data including outbreak investigation and response. This is done through quarterly reports shared at the provincial and national level (as appropriate), and also through the implementation of clear plans of supervision with use of standard checklists and action points.

In order to support the improvement of the national surveillance system, the country has been strengthened through technical and logistical support provided by WHO in addition to a STOP team member who was regularly present in the field between 2012 and 2013.

Moreover, risk assessments, which are conducted on quarterly basis, are used to help identify provinces and districts with significant surveillance gaps for prioritization regarding what concerns strengthening of surveillance in the coming years.

Most recently, in July 2014, MoH has nominated new NCC, NPEC and NTT members with a view to revitalize these committees. Members of these committees have attended an orientation meeting organized by WHO in August 2014. In this meeting, the NCC and its subcommittee were be refreshed and provided with TORs to support their activities. They developed a plan for regular quarterly meetings for the NPEC for final classification of AFP cases. Funds will be made available for field visits as necessary. Funds will also be made available for NTC to visit labs around the country in the context of Polio virus containment. The NCC will meet every six months to assess AFP/Polio, Measles and MNT performance and endorse Polio Annual Progress Reports.

Further, efforts will continue to increase the involvement of community leaders and local organizations in surveillance activities. Volunteers from local NGOs and other influent people in the communities will be oriented and integrated as part of community surveillance network, to continue surveillance activities in the communities for early detection of suspected AFP cases and measles, as well as of other epidemic prone diseases.

Finally, strengthening co-ordination and collaboration among EPI program and surveillance unit including the laboratory at all levels to discuss programmatic issues and data for both surveillance and immunization, will be considered as a paramount priority. Jointly meetings between EPI, surveillance and lab (measles, PBM and Rotavirus) will take place on a monthly base for data quality verification and harmonization. Additionally, joint supportive supervision to provinces and districts will be implemented.

2.5.1.4 Accelerated measles control initiative

Mozambique embarked in accelerated measles mortality reduction strategy in 2005, conducting its first measles catch-up SIAs integrated with OPV and Vitamin A supplementation. For measles, both administrative data and community surveys showed high national coverage rate at 97% and 94.4%, respectively. At sub national level coverage was also high for both administrative and survey data and all provinces achieved at least 90%.

A follow up campaigns was conducted in 2008, in order to reduce the number of accumulated measles susceptible population, targeting children under five with measles, also integrated with Vitamin A and de-worming. In spite of the reported high administrative coverage for these campaign in almost all the districts, enough susceptible populations were accumulated to cause an outbreak in the country, starting in the last quarter of 2009 and continuing through 2010. In 2010, a total of 2,321 were reported from which 1,553 were tested in the lab. The total measles confirmed cases were 1,570, having been 670 IgM+ and the rest through epi-linkage.

In 2011, another measles follow up campaign took place, also with reportedly high administrative coverage at national level (95%), but with large differences at sub-national level, from one district to another. Community survey found coverage of 83% at national level.

Again, while measles routine administrative coverage is reportedly high in almost all districts in the last three years, 2011-2013 (89%, 91% and 87% at national level in 2011, 2012 and 2013, respectively, the percentage of districts with DPT3 coverage above 80% has increased from 61% in 2011 to 81% in 2013. Meanwhile, the DHS 2011 found measles coverage of 81.5% national level, with 2 out of 11 provinces with coverage below 80%, namely Zambézia and Tete, with 71.5% and 75.8%, respectively.

In the last three years, available data on measles surveillance indicate that at national and subnational levels (all provinces) it has been achieved and surpassed the target performance indicators. The non-measles febrile rash illness (NMFRI) detection rate has been above the minimum recommended of 2.0/100,000 population), at national and sub-national level. The percentage of districts that reported at least 1 suspected measles case with blood sample tested in the lab has been situated above 90%, well above the target of 80%.

More than 95% of the reported cases have been tested every year, and < 5% tested measles IgM+. Conversely, rubella IgM+ cases have been increasing steadily over time (from 8% in 2011 to 14% in 2013).

2.5.1.5 Paediatric Bacterial Meningitis Surveillance (PBMS)

The paediatric bacterial meningitis (PBM) surveillance was revitalized in 2011 in central hospital of Maputo. However, it never achieved the standard PBM surveillance performance level. In

part, this might be attributable to the fact that this is a last level reference hospital, and therefore, most eligible patient might not reach this level or by the time the few ones that reach this level have been seen and received first treatment. Therefore, in late 2012 it was decided to expand the sentinel posts and since March 2013, the surveillance of Hib is being implemented in 5 sentinel posts (Hospital Geral de Mavalane, Hospital Geral Jose Macamo and Hospital Central de Maputo in southern zone, Hospital Central da Beira in central zone, and Hospital Central Nampula in northern zone). In southern zone, Hospital Geral de Mavalane and Hospital Geral Jose Macamo are the first referral levels, therefore with higher chances of getting better results as compared to central hospitals. Meanwhile, in central and northern zones, both Central Hospital are also the first referral level.

During the period March 2013 to March 2014 were processed at the National Reference Laboratory of Microbiology 369 samples of cerebrospinal fluid (CSF) of children aged 0 to 5 years with suspected meningitis. Of these samples, 52.3% (193/369) were positive for different bacterial species. The rate of positivity for S. pneumoniae, H. influenzae, N. meningitides and Streptococcus agalactiae was 62.7% (121/193), 23.3% (45/193), 8.3%; (16/193) and 5.7% (11/193) respectively.

Based on the initial experience gained from the sentinel sites described above, there will be gradual expansion of sentinel post to cover the whole country. Planned activities include continuous training of doctors, laboratory technicians, and data managers involved in meningitis surveillance system in Mozambique and support to sentinel sites in providing reagents and equipment.

2.5.1.6 Rotavirus Surveillance

To date, there are scarce data on rotavirus lab surveillance sporadically collected at the occasion of post-graduate thesis in Chókwe Rural Hospital and Mavalane Hospital, both located in southern zone of the country, but these were never set up as rotavirus surveillance system within the Ministry of Health. However, the experience gained in these sites has been useful to support the setting up of a rotavirus surveillance system around the country.

In late 2012, MoH started the establishment of the system within the national institute of health (INS), and surveillance started in Hospital Central de Maputo (HCM) and Hospital Geral de Mavalane (HGM), both located in southern zone. In 2013, were tested in these sites 365 stool samples from children with acute diarrhea from which 249 in HCM and 116 in HGM. Out of the 365 samples tested, 133 (36.4%) were positive for rotavirus.

In August 2013, were assessed and selected additional four hospitals of level 3 and 4 around the country, namely Hospital Central da Beira and Hospital Provincial de Quelimane, in **central zone**, and Hospital Central de Nampula and Hospital Provincial de Pemba in northern **zone**. In addition, Manhiça Health Research Centre (CISM), which has the best equipment and trained personnel is one of the surveillance sites and is assisting the National Institute of Health (INS) in

this purpose.

Focal persons in each paediatric emergency and paediatric wards in the selected hospitals will be trained to identify eligible children, collect fresh stool and report rotavirus surveillance data according to WHO protocols. A system for transporting stool specimens every week or every 15 days, depending on the frequency of samples, will be set, building on the already existing AFP stool samples collection and transport. Some samples will be sent to the rotavirus reference lab for quality control purposes. Furthermore, in the near future, the country intends to start implementing genotyping technique to monitor rotavirus strains in circulation before the introduction of the vaccine, as well as implement techniques for diagnosis of other viral agents (Adenovirus, Norovirus and Astrovirus);

2.5.1.7 Adverse Events Following Immunization (AEFI)

Lastly, surveillance of adverse events following immunization is still a huge challenge to the EPI program. Yet, AEFI is a critical component of the EPI program as it ensures that involved staff is prepared to respond to any potential event including risk communication.

To strengthen surveillance of AEFI, the EPI programme will institutionalize AEFI surveillance by integrating it into the already existing pharmaco-vigillance system, which has already trained focal persons at provincial, district and selected health facilities around the country. Vaccinators and clinicians will be sensitized such that they are made aware of the possibility of AEFI and know to inform the focal person in case of any suspicion; the focal person will in turn report via the appropriate existent reporting channels. In case of a detected adverse event, the Pharmaceutical Department in the Ministry of Health will immediately take action, involving the immunization program in the case investigation process.

On the communication side, the social mobilization and communication sub-committee, will be responsible for managing the AEFI communication. Focal points will be identified and trained on how to communicate in case of possible rumours and AEFI. Furthermore, the social mobilisation and communication plan includes ways to avoid misperceptions about vaccine-safety and adverse events.

What follows is a summary of the situation analysis by system components and accelerated disease control initiatives.

2.6. Situational analysis of the national immunization program

Table 6: Situational analysis by accelerated disease control initiatives

Disease Control Initiative	Suggested indicators	National status[a]		
		2011	2012	2013
Polio	OPV3 coverage	88%	93%	92%
	Non-polio AFP rate per 100,000 children under 15 years of age	3.1	3.1	3.1
	Number of rounds of national and sub national immunization days Coverage range	2 - 66% and 83% (independent monitoring)	1 round - 104.6% (admin)	1 round - 102% (admin)
MNT	TT2+ coverage	63%	78%	74%
	% target population protected at birth from neonatal tetanus (WHO/UNICEF best estimates)	83%	83%	83%
	Was there an SIA? (Y/N)	No	No	No
	Neonatal deaths reported and investigated	No info available	7 deaths. No info on investigated	12 deaths. No info on investigated
	Delivery at Facility Rate	54% (DHS, 2011)	54%	54%
Measles & Rubella	Measles / MR vaccination coverage (2 doses)	89%	91%	87%
	Number of lab confirmed measles/rubella outbreaks	3	2	0
	Geographic extent National Immunization Day Age group Coverage	National 6 to 59 months 104% (admin) and 80.5% (coverage survey	No	National 6 to 59 months 102% (admin) and 81% (Coverage Survey)
	Total Measles Cases (Lab/Clinical/epidemiological)	174	145	8
	Total Rubella Cases(Lab/Clinical/epidemiological)	143	428	127
Yellow fever	YF coverage	N/A	N/A	N/A
	Number and percentage of districts reporting > 1 suspected case	N/A	N/A	N/A
	Was a preventive campaign conducted? (Y/N)	No	No	No
Epidemic Meningitis	Meningococcal A Coverage	N/A	N/A	N/A

Table 7: Situational analysis of routine EPI by immunization system components

System Components	Suggested indicators	RESULTS		
		2011	2012	2013
1. SERVICE DELIVERY				
Immunization Coverage	Official Coverage Estimates % DTP3	76%	76%	78%
	Official Coverage Estimates % Measles	82%	82%	85%
	Most Recent Survey Coverage % DTP3	76% (DHS, 2011)		
	% Fully Immunized Child	64% (DHS, 2011)		
Immunization Demand	% Drop Out DTP1 – DTP3	14%	10%	12%
Immunization Equity	% gap in DTP3 between highest and lowest socio economic quintiles	36.4% (96.7-60.3) - DHS, 2001	Not Available	Not Available
	Number of districts with DTP3 coverage > 80%	98	117	128
	Number of high risk communities / districts identified for accelerated routine immunization programming	28	12	24
Integration	% Services provided at fixed facilities	100% for basic primary health care interventions package	100% for basic primary health care interventions package	100% for basic primary health care interventions package
	Guidelines on Outreach health service package developed	No	No	Existing - In piloting
New Vaccines Introduction	No. of new vaccines introduced into the routine schedule in the last plan period	None	None	PCV
	Pentavalent Coverage	85%	93%	92%
	PCV Coverage	N/A	N/A	60%
	Rotavirus Coverage	N/A	N/A	N/A

Table 8.1: Situational analysis by accelerated disease control initiatives, based on previous

System Components	Suggested indicators	RESULTS		
		2011	2012	2013
2. PROGRAMME MANAGEMENT				
Law & Regulation	What numbers of functions are conducted by the NRA?	Post marketing surveillance, authorization of clinical trials	Post marketing surveillance, authorization of clinical trials	Post marketing surveillance, authorization of clinical trials
	Is there legislation or other administrative order establishing a line item for vaccines?	Yes	Yes	Yes
	Is there legislation identifying sources of public revenue for immunization financing?	No	No	No
Policy	Has the national immunization policy been updated?	No	No	No
Planning	Does the country have an annual work plan for immunization funded through Ministry of Health budgeting processes?	Yes	Yes	Yes
	What is the number of districts with an annual micro-plan for immunization?	All, but at this level the plan is integrated with other interventions	All, but at this level the plan is integrated with other interventions	All, but at this level the plan is integrated with other interventions
Coordination	What were the Number of ICC (or equivalent) meetings held last year at which routine immunization was discussed?	2	3	2
	What were the Number of NITAG (or equivalent) meetings held last year?	1	0	0
Advocacy	How many presentations on immunization performance, expenditures, were made to parliament?	0	0	0

Table 8.2: Situational analysis by accelerated disease control initiatives, based on previous

System Components	Suggested indicators	RESULTS		
		2011	2012	2013
3. HUMAN RESOURCES MANAGEMENT				
HR Numbers	No. of health workers/vaccinators per 10,000 population	0.5	0.5	0.5
	% vaccinator posts currently vacant	40%	40%	40%
Capacity Building	No. of health workers & managers trained in immunization services through MLM or IIP training per year;	193 prov. & district trained on RED/DQS; 31 national and prov. level staff trained on EPI logistic, including SMT and DVDMT tools; 11 surveillance officers trained on IDSR	148 district level + 22 provincial levels EPI managers trained on EPI logistics; 11 provincial level trained on CC maintenance and 30 prov. & district levels trained on RED/DQS	27 district and 6 provincial EPI managers trained on EPI logistic and DVDMT tool; 11 surveillance officers trained on IDSR
	% of health workers trained in immunization in the last two years (data from PIE and EPI reviews);		87% national level; 82% provincial level (range 71-100); 80% district level (range 62-87); and 70% service delivery level (range 40-83) - Source EVMA 2012	Overall 67% of health staff at service delivery level trained on PCV10 introduction
	Curriculum review for pre-service medical and nursing immunization education conducted	Not conducted	Not conducted	Not conducted
Supervision	Average no. of central supervision visits to each District level Per year	2	4	3

Table 8.3: Situational analysis by accelerated disease control initiatives, based on previous

System Components	Suggested indicators	RESULTS		
		2011	2012	2013
4. COSTING AND FINANCING				
Financial sustainability	What percentage of total routine vaccine spending was financed using government funds? (including loans and excluding external public financing)	20% (2,291,765)	30% (2,611,824)	20% (3,994,362)
	Was the line item in the national budget for immunization 100% funded.	No	No	No
	What % of immunization resources are being met by the domestic health budget (as identified in the annual budget plan)	13%	19%	22%
	Government expenditures on routine immunization per surviving infant (JRF 6700)	4.7	5.2	6.3
	Are sub-national immunization budgets and expenditures monitored and reported at national level?	No	No	No

Table 8.4: Situational analysis by accelerated disease control initiatives, based on previous

System Components	Suggested indicators	RESULTS		
		2011	2012	2013
5. VACCINE SUPPLY, QUALITY & LOGISTICS				
Transport / Mobility	Percentage of districts with a sufficient number of supervisory/EPI field activity vehicles /motorbikes/bicycles in working condition	100	80	70
Vaccine supply	Was there a stock-out at national level during the last year?	Yes	Yes	Yes
	If yes, specify duration in months	1-1.5	1	1.5
	If yes, specify which antigen(s)	Pentavalent and TT	BCG and Measles	OPV
Cold chain/Logistics	% of districts with adequate numbers of appropriate and functional cold chain equipment	ND	ND	80%
	What was the year of last inventory assessment for all cold chain, transport and waste management equipment (or EVM)		EVM Conducted	
	No. PHC facilities with > 80% score for all indicators on the last EVM assessment	N/A	60	N/A
	% Districts with Availability of a cold chain replacement plan	None	100% (No single district has its own plan, but the plan available at national level includes all districts and health facilities)	100% (No single district has its own plan, but the plan available at national level includes all districts and health facilities)
Waste disposal	Availability of a waste management policy and plan	Yes	Yes	Yes

Table 8.5: Situational analysis by accelerated disease control initiatives, based on previous

System Components	Suggested indicators	RESULTS		
		2011	2012	2013
6. SURVEILLANCE & REPORTING				
Routine surveillance	Percentage of surveillance reports received at national level from districts compared to number of reports expected	100%	100%	100%
	AFP detection rate/100,000 population under 15 year of age	3.1	3.1	3.1
	% suspected measles cases for which a laboratory test was conducted	98%	94%	99%
	Number of neonatal deaths for which a follow up investigation was conducted	Information Not Available	7 deaths, but no investigation report	12 deaths, but no investigation report
	Sentinel Surveillance for Rotavirus establish	1	1	3
	Sentinel Surveillance for meningitis (Hib/PCV) established	1	3	5
	% of suspected meningitis cases tested for Hib/pneumococcal disease according to standard protocol	92% (97/106)	78% (79/101)	% (369/)
Coverage Monitoring	% gap in match between DTP3 survey coverage and officially reported figures	9%	17%	14%
Immunization safety	% of districts that have been supplied with adequate (equal or more) number of AD syringes for all routine immunizations	100%	100%	100%
Adverse Events	National AEFI System is Active with a designated national committee	No AEFI System in Place	No AEFI System in Place	No AEFI System in Place
	Number of serious AEFI cases reported and investigated	No Report	No Report	Non Report

Table 8.6: Situational analysis by accelerated disease control initiatives, based on previous

System Components	Suggested indicators	RESULTS		
		2011	2012	2013
7. DEMAND GENERATION AND COMMUNICATION				
Communication Strategy	Availability of a routine immunization communication plan	No	No	No
Research	Year of last study on community knowledge, attitudes and practices in relation to immunization	None	None	None
Demand	% of outreach services held as planned	65%	82%	78%
	Districts with High risk plan for disadvantaged communities	28	12	24

2.7 SWOT Analysis of routine EPI in Mozambique

2.7.1 Financing and Partnership

The EPI program is one of the high priority programs for the MoH, and immunization coverage levels are closely monitored as a measure of the program performance. However, the program needs more support in terms of human and financial resource allocation to the program. The EPI program does not have a large group of local partners to support program implementation. The interagency coordination committee, which used to be the major forum for coordinating donor support within country, is currently not fully functional as it focus on EPI, while most partners today, tend to focus on the national integrated MDG4&5 plan. Therefore, MoH and partners have created a mini-swap group that coordinate efforts towards MDG4&5, and given that EPI is also part of this plan, there is consensus that the ICC be replaced by this mini-swap group.

Mozambique has just established the National Immunization Technical Advisor Group. This NITAG will be used to advocate for and guide the adequate implementation of the recommended EPI strategies.

The presence of a blooming private sector, the SWAp mechanism for pooling donor funding for health activities, the periodic Mother and Child Health week strategy are all widely recognized opportunities to strengthen routine immunization in Mozambique. Currently, the instability of the global economy, which affects also the country economy, remains major threats to EPI goal for Mozambique.

2.7.2 Social Mobilization, Advocacy, Communication for EPI

There are opportunities of social networks to link the community however the health education officers are involved only during campaigns and no consistent strategy of systematic mobilization of the community for Immunization is implemented. The MoH is developing a health promotion strategy and already has a well-developed community involvement Strategy (APEs). A Health Education Manual has been developed and is being used to guide activities at the operational level. However, there is no effective communication strategy to address communication gaps for communities with low or no school education for utilization of health services, with emphasis to immunization.

2.7.3 Cold Chain, Logistics and Vaccine Management

An assessment of the cold chain capacity nationwide indicates that there is no enough storage capacity at central, regional provincial and in some districts and some health facilities to accommodate rotavirus vaccine introduction in 2015, according to country's plan. Meanwhile, at district and health facility levels practices of vaccine management need improvement in terms of temperature recording, adequacy of stock records, as found in the EVMA conducted in May 2012.

However, the country has just developed in May 2013 a national cold chain update plan for the period 2014-2018 that includes the expansion of cold chain to accommodate new vaccines to be introduced into the national immunization (Rotavirus, measles second dose and HPV), the expansion of fixed vaccination posts and replacement of old and depleted cold chain equipment. The plan also contemplates creation of two regional vaccine stores, one in Sofala (for central zone) and the other in Nampula (for northern zone). It also contemplates provision of refrigerated trucks for central and the two regional vaccine stores for vaccine distribution, and 3 mobile cold chain maintenance units and kits to support CC maintenance in the three regions of the country. Lastly, the plan also contemplates the purchase of temperature monitoring devices for all levels of the system, cold chain spare parts and training of cold chain maintenance technicians at provincial level and cold chain maintenance assistants at district level, to handle cold chain troubleshoots at their level. **It is worth mentioning that funds for rehabilitant and expansion of the cold chain at central, regional and provincial level have already been secured through USAID-UNICEF.**

Vaccine Management Assessment (VMA) is performed regularly by National staff, and the reports and recommendations are available to guide corrective actions. There are trained logisticians in all 11 Provinces, and a district level logistics training plan is ready for implementation. At national level, vaccine management has been adequately computerized, and at provincial level, tools have been made available for the management of vaccines. All logisticians have been trained on the use of these tools. A plan to extend the vaccine management tools to districts (DVDMT) is being implemented.

2.7.4 Data Quality and Program Monitoring

The MoH is implementing the strategic plan for Health Information System in the country. In addition, within the EPI program, DQS has been introduced and coverage surveys are regularly performed in a decentralized manner.

However, over and under reporting of data remains a problem at all levels. The timeliness and completeness of reporting is still not optimal and, immunization monitoring data is not systematically analysed and used for action. The coordination between the EPI and Surveillance programs of the MoH remains weak, as these are under different directorates.

2.7.5 Program Coverage

The EPI program, run through the fixed health facilities and outreach sites, has not still been able to adequately reach a significant proportion of the target population, despite the presence of an outreach service delivery strategy. The periodic SIAs and the Mother and child Health Weeks are opportunities to increase access and coverage.

2.7.6 Surveillance

The country has managed to surpass and maintain high AFP/Polio and Measles surveillance indicators at national level in the last 3 years. Measles case-based surveillance has been in place in Mozambique since 2005, and is supported by a well-functioning measles lab. The lab has

passed accreditation exercises annually since it started work. AFP/Polio and Measles surveillance guidelines are available at the sub national level, and the appropriate case investigation forms are available at all levels. Provincial level surveillance focal points have been trained, and an institutionalized mechanism has been in place for both measles and AFP specimen transport to the national measles lab and reference polio lab in Johannesburg.
Existence of well-equipped and preforming PBM and rotavirus surveillance site in Manhiça health research centre that can be used to build capacity and strengthen these disease surveillance systems. Availability of WHO technical and financial support for PBM and rotavirus surveillance. Deployment of a stop team member on the field since 2012.

However, there are some surveillance performance gaps at sub-national level. The timeliness of surveillance and lab data remains below 80%. Health workers' level of recognition of the reporting procedures and reporting case definitions is not satisfactory. This is compounded by the high level of staff turnover. Currently there are no feedback systems to the district/health facility/community levels.

The FELTP training is periodically provided to health workers, and can be adapted to address some of the gaps in the reporting and investigation of measles cases and outbreaks.

2.7.7 Supplemental Immunization activities (SIAs)

There is rich experience within country in terms of resource mobilization for SIAs. However, there are still high expectations for external donor support to these SIAs. There is also ample experience from the previous measles SIAs, in terms of the social mobilization work with the women's group, the church, the youth group, etc. However, the linkage between the various sectors (health, women, social action and education) at the national level remains weak. In addition, with regards to measles control, the amount of social mobilization materials are not sufficient in quantity and specific health communication strategies are yet to be developed.

2.7.8 Human Resource

The MoH is currently conducting a restructuring of the EPI program, and a human Resources Expansion Plan is being implemented at national level in order to address the chronic problem with insufficient human resources in quality and quantity, and high staff turnover. However, shortage and insufficient training of health staff associated with inadequate supportive supervision at all levels of the health system is still a challenge.

Table 9.1: Summary of Strengths and weaknesses by Accelerated Disease Control Initiatives, Mozambique, 2013		
Component	**Strengths**	**Weaknesses**
Polio Eradication	• High coverage rate. • Non-Polio AFP rate good at national level. • Stool adequacy good at national level • No wild poliovirus detected since inception of AFP/Polio surveillance • Existence of NCC, NPEC and NTF	• Low proportion of districts with OPV3 coverage above 80% • Non Polio AFP rate at sub-national level is sub-optimal in some provinces • Stool adequacy sub-optimal in some provinces • Polio immunity gap, with occurrence of cVDPVs.
Measles control	• SIA strategy in place to boost coverage • Integration with measles, vitamin A supplementation and de-worming • Fairly good measles surveillance system in place (NMFRI-rate above standard levels, and > 90% of reporting districts, with at least 1 blood sample taken)	• Low proportion of districts reporting measles coverage above 90%
Neonatal Tetanus Elimination	• School based TT vaccination Programme in place • TT vaccination for WCBA in routine (fixed and mobile) • MNT eliminated	• Missed opportunities for TT immunization
Service delivery	• Programme well established and running since 1979 • There is committed health staff at all levels • Reach hard to reach areas by routine immunization through RED • Experience in campaigns adopted in the routine immunization	• Only about 60% of the population has access to health services • High national dropout rate up > 10%. • Programme heavily dependent on outreach which is an expensive strategy • Difficulties by peripheral health facilities to go on outreach due to lack of transport, fuel and allowances • Delay in sending data on the number of children immunized, wastage rate and communication activities from the provinces

Table 9.2: Summary of Strengths and weaknesses by EPI system components, Mozambique, 2013		
Component	**Strengths**	**Weaknesses**
Logistics, equipment maintenance, vaccine supply and quality	• Well-ventilated storage capacity at the central level • Continuous power supply with back up from an automatic generator. • Vaccine storage at recommended temperature, availability at all levels (central and provincial) of cold boxes, thermometers, vaccine monitors necessary to keep vaccines • Deployment of specific logistic and maintenance personnel in all provinces • Use of SMT at national & provincial levels • DVDMT introduced in some districts • CCUP developed and under implementation	• Low level of vaccine wastage reporting • Vaccines and related injection safety materials (auto-disable syringes and safety boxes) are not supplied bundled • Inadequate stock management at provincial and lower levels • Poor recording of injection safety material at central level • Vaccine Vial Monitor (VVM) discarding point not always observed at health facility level • Existence of non-recommended and different brands of equipment for EPI at provincial and lower levels
Injection safety and waste management	• Auto-disable syringes kept in safety boxes immediately after use, regularly collected, burnt and buried in pits • Injection practices generally safe at vaccine service delivery point • Use of injection safety materials in all vaccination sessions	• In most health units, the pits are not adequately protected and are located in places of easy access to the communities. • Waste not burnt regularly in most health facilities

Table 9.3: Summary of Strengths and weaknesses by EPI system components, Mozambique, 2013

Component	Strengths	Weaknesses
Advocacy and communication	• Intense social mobilization during campaign with the active participation of community leaders • Community involvement strategy developed • Strategy in place to boost community involvement through recruitment and training of community health workers (APE's) • Manual of health education developed	• Absence of IEC materials on routine EPI at all levels especially at health facilities • Limited use of mass media (TV, radio, newspapers) in routine message dissemination • No staff dedicated to social mobilization of EPI at central and provincial levels • Lack of an EPI communication strategy to address communities with low school education
Surveillance	• Availability of disease surveillance manuals in all provinces • Adequate disease reporting and vaccine register tools available at all levels • Surveillance reports available • National laboratory capable of making the serological diagnosis of measles.	• Underreporting of surveillance data • No systematic analysis of coverage, cases and deaths due to vaccine preventable diseases at district levels • Weak integration between EPI, health information system and disease surveillance • Surveillance of adverse events following immunization (AEFI) not yet in place

Table 9.4: Summary of Strengths and weaknesses by EPI system components, Mozambique, 2013		
Programme Management		
Monitoring & Supervision	• Supervision activities carried out at all levels during integrated measles campaign	• Not all planned regular supervisions are carried out at all levels • Absence of supervision reports in many health facilities and district directorates • No follow-up on the recommendations of available reports • Supervisory visits usually brief and in many instances do not take into consideration the main aspects of the EPI components • No periodic evaluation meetings between different levels of EPI programme • No implementation of DQS tool at district level • No adequate supervision from central level to other levels • No supervisory checklists for routine immunization.
Human Resources	• Existence of a national human resources for health policy and plan • Basic training for staff at different levels of EPI • All staff trained on the technical, operational and logistics aspects during campaigns • Dedicated human resources for the EPI at all levels • Training Needs Assessment conducted in last 2 years	• Few follow-up trainings held after the basic training of EPI staff • Inadequate staffing at all levels • High turnover of EPI personnel

Table 9.5: Summary of Strengths and weaknesses by EPI system components, Mozambique, 2013		
Component	**Strengths**	**Weaknesses**
Programme Management		
Financial Sustainability	• Existence of a SWAP, MTEF, for health sector • Most routine vaccines purchased by Mozambican Government • Budget line for vaccines in place • Government financing to EPI increasing	• Insufficient financial resources to implement EPI Plan of Action. • Resources from government alone too small to guarantee financial sustainability
Linkages to other health interventions	• Child health weeks adopted as a strategy for service delivery • Routine activities are integrated (adopted the mother and child health package) • Existence of a MDG 4 & 5 plan • Signing of the compact (IHP+)	• Weak integration at central level (e.g. limited joint planning & monitoring) • Limited sharing of information • Limited integration between surveillance and EPI
Management planning	• Indicators are regularly collected from districts to national level • EPI manual updated • Vaccine Management & CC guidelines updated	• No synchronization between the central and provincial/district planning cycles • Low quality of district operational plans
NRA		• NRA not functional for EPI

3. NATIONAL PRIORITIES, OBJECTIVES AND MILESTONES, MOZAMBIQUE 2014-2018

Table 10.1: National priorities, objectives and milestones, Mozambique NIP, 2015-2019

National priorities	Current Performance	NIP Objectives*	NIP Milestones	AFRO Regional goals	Order of Priority
Routine Immunization	(1) Penta = 92%; OPV = 92%; BCG = 100%; Measles = 87%; PCV = 60%; TT2+ = 74% (2) DPT1/3 dropout rate =12% at national level	(1) To achieve and sustain high immunization coverage for all antigens (at least 90% at National level) by 2019 (2) Achieve a DPT1/3 drop out of < =10% at national level by 2019	**2014**: Penta 3 = 93%; OPV = 93%; PCV 3 = 93%; BCG = 100%; MCV1 = 88%; TT2+ = 76; DPT3/1 Dropout rate = 11% **2015**: Penta 3 = 94%; OPV = 94%; PCV 3 = 94%; BCG = 100%; MCV1 = 90%; TT2+ = 78; DPT3/1 Dropout rate < = 10% **2016**: Penta 3 = 95%; OPV 2 = 95%; PCV 3 = 95%; BCG = 100%; MCV1 = 46%; TT2+ = 80; DPT3/1 Dropout rate < = 10% **2017**: Penta 3 = 95%; OPV 2 = 95%; PCV 3 = 95%; BCG = 100%; TT2+ = 82; DPT3/1 Dropout rate < = 10% **2018**: Penta 3 = 95%; OPV 2 = 95%; PCV 3 = 95%; BCG = 100%; TT2+ = 84; DPT3/1 Dropout rate < = 10% **2019**: Penta 3 = 95%; OPV 2 = 95%; PCV 3 = 95%; BCG = 100%; TT2+ = 85; DPT3/1 Dropout rate < = 10%	By 2015 all countries will have routine immunization coverage of 90% nationally with at least 80% coverage in every district.	
New Vaccine Introduction		(1) Introduce Rotavirus vaccine countrywide by 2015 and achieve and sustain high immunization coverage for Rotavirus 2 of at least 90% at National level and at least 80% in at least 80% of the districts by 2018 (2) Introduce MSD vaccine countrywide by 2015 and achieve and sustain high immunization coverage for MCV2 of at least 90% at National level and at least 80% in at least 80% of the districts by 2019 (3) Introduce MR vaccine countrywide by 2016 and achieve and sustain high immunization coverage for MR of at least 90% at National level and at least 80% in at least 80% of the districts by 2019 (4) Introduce at least 1 dose IPV vaccine countrywide by 2016 and achieve and sustain high immunization coverage for IPV of at least 90% at National level and at least 80% in at least 80% of the districts by 2019 (5) Introduce HPV vaccine countrywide by 2016 and achieve and sustain high immunization coverage for HPV of at least 90% at National level and at least 80% in at least 80% of the districts by 2019	**2015**: Rota 2 = 60%; MCV2 = 60%; IPV = 60%; Rota 1/2 Dropout rate < = 10 % **2016:** Rota 2 = 94%; MCV 2 = 39%; MR1 = 46%; MR 2 = 39%**;** IPV = 94%; HPV 2 = 60%; Rota 1/2 Dropout rate < = 10 %; MCV1/2 Dropout rate < = 14 % **2017**: Rota 2 = 95%; MR1 = 93%; MR 2 = 83%; IPV = 95%; HPV = 70%; Rota 1/2 Dropout rate < = 10 %; MR/MCV2 Dropout rate < = 10 % **2018**: Rota 2 = 95%; MR1 = 94%; MR 2 = 87%; IPV = 95%; HPV = 75%; Rota 1/2 Dropout rate < = 10 %; MR/MCV2 Dropout rate < = 7 % **2019**: Rota 2 = 95%; MR1 = 95%; MR 2 = 90%; IPV = 95%; HPV = 80%; Rota 1/2 Dropout rate < = 10 %; MR/MCV2 Dropout rate < = 5 %	By 2015 all countries will have routine immunization coverage of 90% nationally with at least 80% coverage in every district.	

Table 10.2: National priorities, objectives and milestones, Mozambique NIP, 2015-2019

National priorities	Current Performance	NIP Objectives*	NIP Milestones	AFRO Regional goals	Order of Priority
Campaigns		(1) Implement catch up campaign (9 months - 14 years) for MR in 2016 at national scale and achieve at least 95% coverage (2) Implement National Health Days 2 times per year and achieve at least 90% coverage for all selected interventions	**2016:** MR = at least 95% coverage **2015 - 2019:** at least 90% coverage for all selected interventions		
Equity	(1) 42% of districts with at least 80% coverage for all antigens (2) 48% of districts with DPT1/3 Dropout rate < = 10%	(1) To achieve at least 80% of districts with at least 80% coverage for all antigens by 2019 (2) To achieve at least 80% of districts with DPT1/3 Dropout rate < = 10% by 2019	**2014**: 45% of districts with at least 80% coverage for all antigens; at least 55% of districts with DPT1/3 dropout rate < = 10% **2015**: 55% of districts with at least 80% coverage for all antigens; at least 60% of districts with DPT1/3 dropout rate < = 10% **2016**: 65% of districts with at least 80% coverage for all antigens; at least 65% of districts with DPT1/3 dropout rate < = 10% **2017**: 70% of districts with at least 80% coverage for all antigens; at least 70% of districts with DPT1/3 dropout rate < = 10% **2018**: 75% of districts with at least 80% coverage for all antigens; at least 75% of districts with DPT1/3 dropout rate < = 10% **2019**: 80% of districts with at least 80% coverage for all antigens; at least 80% of districts with DPT1/3 dropout rate < = 10%		
MNT	MNT eliminated TT2+ = 74%	(1) Maintain the MNT elimination status attained in 2011 in all districts (2) Achieve and sustain at least 85% TT2+ coverage at national and in at least 80% of districts by 2019	**2014** and beyond: Maintain the MNT elimination status **2014**:76% national and in at least 76% of districts **2015**:78% national and in at least 78% of districts **2016**:80% national and in at least 80% of districts **2017**:82% national and in at least 82% of districts **2018**:84% national and in at least 84% of districts **2019**:85% national and in at least 85% of districts		

Table 10.3: National priorities, objectives and milestones, Mozambique NIP, 2015-2019

National priorities	Current Performance	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
Immunization Safety		Maintain the use of AD syringes and safety boxes in 100% of the vaccination posts in either fixed or mobile teams	**2014 - 20189** Maintain 100% of AD syringes and safety boxes use in all vaccination posts (fixed and mobile)	By the end of 2008, all immunization injections are administered safely.	
Waste Management	26% in 2013 with adequate waste management system	Achieve at least 60% of health facilities with fixed vaccination post with adequate waste management system (adequately built, protected, located and used or with incinerator or collection system for incineration) for EPI waste by 2019	**2014**: at least 30% of HF with fixed vaccination post with adequate waste management system **2015**: at least 35% of HF with fixed vaccination post with adequate waste management system **2016**: at least 45% of HF with fixed vaccination post with adequate waste management system **2017**: at least 50% of HF with fixed vaccination post with adequate waste management system **2018**: at least 55% of HF with fixed vaccination post with adequate waste management system **2019**: at least 60% of HF with fixed vaccination post with adequate waste management system		

Table 10.4: National priorities, objectives and milestones, Mozambique NIP, 2015-2019

National priorities	Current Performance	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
Surveillance	(1) AFP rate = 3.1; AFP/Polio Stool Adequacy = 87%; NMRFI rate = 3.6; % of district with at least one blood sample tested in the lab = 79%	(1) Sustain high quality AFP/Polio, Measles and NNT surveillance performance indicators at national level by 2019	**2014 and beyond:** Non-Polio AFP/ rate of at least 2/100,000 < 15 Years and stool adequacy rate of at least 85% at national level;		
	(2) % of provinces achieving target AFP/Polio and Measles surveillance performance indicators = 72%	(2) 100% of provinces achieve the target AFP/Polio and Measles surveillance performance indicators by 2019	**2014 and beyond:** Non-Polio AFP/ rate of at least 2/100,000 < 15 Years and stool adequacy rate of at least 87% at national level; 80% of districts with at least one blood sample tested in the lab **2014 and beyond**: Non-Polio AFP rate of at least 2/100,000 < 15 Years and achieve an adequacy stool rate of at least 85% at national level; all provinces with Non-Polio AFP rate of at least 2/100,000 < 15 Years and stool adequacy rate of at least 85% ; at least 90% of reporting districts		
	(3) Underperforming PBM surveillance in the 5 existing sites and Rota Surveillance systems in refer Lab	(3) Expand PBM and Rota disease surveillance to all provinces by 2019			
	(4) No AEFI surveillance system in place	(4) Institutionalize surveillance of AEFI			

Table 10.5: National priorities, objectives and milestones, Mozambique NIP, 2015-2019

National priorities	Current Performance	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
Vaccine Supply, Cold Chain / Logistics		(1) Improve cold chain capacity at all levels to meet the needs for new vaccine introduction at 2015 and 2016, and for expansion and replacement of depleted and old cold chain by 2019 (2) Improve vaccine and injection safety supply chain from central to service delivery level and achieve no vaccine and supplies stock out at service delivery level every year by 2019 (3) Establish an effective vaccine management system in all Districts by 2016	**2015**: expand and rehabilitate cold chain capacity at central, regional and provincial level; **increase cold chain capacity in all districts and health facilities with inadequate storage capacity** to meet the need for new vaccine introduction (Rotavirus in 2015 and HPV in 2016); **100% of old/depleted cold chain** rehabilitated or replaced at health facility level **2015**: < = 20% of districts reporting stock out of any vaccine / injection safety supplies per year; **at least 50%** of the district with using the available **vaccine management tools (SMT and DVDMT)** **2016**: < = 10% of districts reporting stock out of any vaccine / injection safety supplies per year; **100% of the district** with using the available **vaccine management tools (SMT and DVDMT)** **2017**: < 5% of districts reporting stock out of any vaccine / injection safety supplies per year; **100% of the district** with using the available **vaccine management tools (SMT and DVDMT)** **2017**: < 5% of districts reporting stock out of any vaccine / injection safety supplies per year; **100% of the district** with using the available **vaccine management tools (SMT and DVDMT)** **2018 and beyond**: 0 % of districts reporting stock out of any vaccine / injection safety supplies per year; **100% of the district** with using the available **vaccine management tools (SMT and DVDMT)**		
Demand Generation and Communication		At least 80% of caretakers of children understand the importance of routine immunization and the vaccination schedule and use available services by 2019	**2015**: develop **KAP study** country wide on EPI ; Update **EPI communication strategy and develop plan of action**; develop a **specific plan to address** low utilization of immunization services by **communities with low school education** and address gender issues; **2016 and beyond**: implementation of a communication plan, as per KAP recommendations		

Table 10.6: National priorities, objectives and milestones, Mozambique NIP, 2015-2019

National priorities	Current Performance	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
Management and Planning		Build capacity for adequate program management and implementation in all districts and ensure reliable supportive supervision by 2016	**2015**: at least 50% of districts with DHMT created and capacitated **2016**: at least 75% of districts with DHMT created and capacitated **2017**: at least 90% of districts with DHMT created and capacitated **2018**: all districts with DHMT created and capacitated		
Program Efficiency		To achieve a vaccine wastage of < 10% for all liquid vaccines in the national EPI program by 201 (baseline in 2011: not accessed improve program efficiency by putting in place vaccine wastage monitoring system)	**2015**: wastage of < 10 national level, all provinces and in at least 50% of districts, for all liquid vaccines in the NIP **2016**: wastage of < 10 national level, all provinces and in at least 75% of districts **2017**: wastage of < 10 national level, all provinces and in at least 90% of districts **2018 and beyond**: wastage of < 10 national level, all provinces and districts		
Financial Sustainability		Increase the national funding for EPI by at least 10% per year (baseline in 2011: 24%)	An annual increase of at least 5% in government funds allocated to NIP		
Human Resources Management		Strengthen the EPI Program through deployment of adequately trained human resources to respond to the needs of the Program by 2015	**2015**: conduct EPI curricula review and update (pre and in service) and conduct MLM training for all health training institutions **2016 and beyond**: implement revised EPI curricula for training and deploy human resources at various levels of the system to fill the vacant positions in the new comprehensive EPI structure at different levels		

Table 10.7: National priorities, objectives and milestones, Mozambique NIP, 2015-2019

National priorities	Current Performance	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
Human Resources Management		Train / refresh EPI staff at different levels of the and ensure reliable supportive supervision by 2018	By **2015**: at least 50% of districts trained on MLM, RED, DQS and effective vaccine management and provided with adequate tools and regular follow up supervisory visits By **2017 and beyond**: all districts trained on MLM, RED, DQS and effective vaccine management and provided with adequate tools and regular follow up supervisory visits, and refresh training conducted every three years		
Research / Studies		Evaluate and strengthen the National Immunization Program by 2018	**2015**: EPI and Surveillance Review (include PBM and rotavirus sentinel surveillance system); KAP study on EPI service utilization **2016**: Conduct EVMA; PIE (Rota) **2017**: PIE (HPV)		
Linking to Other Health Interventions		Integrate the MGD4&5 plan in the district plans for its operationalization by all district 2015	**2015**: at least 50% of districts will have integrated the MDG4&5 plan into their plans and operationalize it **2016 and beyond**: all districts will integrated the MDG4&5 plan into their plans and operationalize it	MDG4&5 by 2015	

4. STRATEGIES, ACTIVITIES AND TIMELINE

Table 11.1: Service delivery - strategies and key activities

National Objective	*Strategy*	Key Activities
(1) To achieve and sustain high immunization coverage for all antigens, of at least 90% at National level and at least 80% of districts with at least 80% for all antigens by 2019 (baseline DHS 2011: BCG – 91.1%; DPT-HepB-Hib3 – 76.2%; OPV3 – 73.2%; Measles – 81.5%; and 42% of districts with at least 80% coverage for all antigens)	Ensure the un-reached are reached in every district at least four times per year	Conduct micro-planning for RED implementation at the district or local level
		Timely release funds for implementation of planned activities
		Implement the minimum integrated MCH package in health facilities with fixed vaccination posts as wells as in outreach / mobile sessions
		Conduct Child Health Days 2 times per year
		Engage non-governmental organizations and private sector in the delivery of services
		Implement African Vaccination Weeks
		Conduct integrated supportive supervision
(2) Achieve a DPT1/3 drop out of < =10% in at least 80% of the districts by 2019 (DHS 2011: National DPT1/3 drop out of 14% and 46% of districts with a DPT1/3 drop out of <= 10%	Establish a defaulter tracing mechanism at health facility	Involve health workers and community health workers in the identification of missing children at the health facility and community levels, and immunize them
	Minimize missed opportunities	Strictly comply with outreach plans and schedules.
		Integrate defaulter tracing also during child health weeks activities

Table 11.2: Service delivery - strategies and key activities

National Objective	Strategy	Key Activities
(1) To achieve and sustain high OPV3 coverage of at least 90% at national level and at least 80% at district level in at least 80% of the districts, by 2019 (baseline DHS 2011: OPV:73.2% at national level (2) Achieve at least 90% NIDs at national and 85% at sub-national (district) levels	Ensure the un-reached are reached in every district at least four times per year	Conduct regular risk assessment for Polio importation
		Conduct national or sub-national NIDs for OPV as appropriate
		Regularly evaluate OPV coverage by district and take corrective measures
		Integrate OPV in all activities mentioned above for sustaining high immunization coverage
(1) To achieve and sustain high MCV1 coverage of at least 90% at national level and at least 80% at district level in at least 80% of the districts, by 2018 (baseline DHS 2011: Measles: 85.1%) and 52% of districts with at least 80% Measles coverage – JFR 2011 (2) Achieve at least 95% coverage in all Measles SIAs at national and sub-national (district) levels	Ensure the un-reached are reached in every district at least four times per year	Conduct regular risk assessment for measles outbreak
		Conduct national or sub-national NIDs for measles as appropriate
		Conduct measles follow up SIAs at national level
		Regularly evaluate measles coverage by district and take corrective measures
		Integrate measles in all activities mentioned above for sustaining high immunization coverage
Maintain the MNT elimination status attained in 2011 in all districts Achieve and sustain at least 80% TT2+ coverage at national and in at least 80% of districts by 2018 (baseline DHS 2011:56%)	Maintain MNT elimination activities	Continue TT immunization for WCBA in health facilities, mobile teams and working places
		Continue TT immunization for all children in 1st and 2nd grades and for school girls in higher grades and high schools
		Assess periodically the MNT status of districts
		Respond with TT SIAs if necessary
To achieve and sustain high DPT-HepB-Hib3 coverage of at least 90% at national level and at least 80% at district level in at least 80% of the districts, by 2018 (baseline DHS 2011: 76.2% national level and 68% of districts with at least 80% penta3 coverage – JFR 2011)	Ensure the un-reached are reached in every district at least four times per year	Regularly evaluate DPT-HepB-Hib coverage by district and take corrective measures
		Integrate measles in all activities mentioned above for sustaining high immunization coverage

Table 11.3: Service delivery – strategies and key activities

National Objective	Strategy	Key Activities
(1) To achieve and sustain high PCV3 coverage of at least 90% at national level and at least 80% at district level in at least 80% of the districts, by 2019 immunization coverage for Rotavirus 2 of at least 90% at National level (see cMYP) and at least 80% in at least 80% of the districts by 2019 (baseline : 0 as PCV was introduced in April 2013 – it is expected that from 2014 PCV3 coverage will equal penta3 coverage as they are supposed to be administered at the same time in the vaccination schedule)	Ensure the un-reached are reached in every district at least four times per year	Develop tools and field guidelines on PCV introduction
		Develop advocacy and IEC materials for pneumococcal vaccine introduction
		Update child health card & monitoring tools
		Train health workers with focus on PCV
		Disseminate IEC materials
		Immunize children with PCV
		Integrate PCV in all activities mentioned above for sustaining high immunization coverage
		Conduct a post introduction evaluation
(1) Introduce Rotavirus vaccine countrywide by 2015 and achieve and sustain high immunization coverage for Rotavirus 2 of at least 90% at National level (see cMYP) and at least 80% in at least 80% of the districts by 2018 (baseline : 0 as Rotavirus vaccine will introduced in April 2015 – it is expected that from 2016 Rotavirus 2 vaccine coverage will at least equal penta3 coverage as it is supposed to be administered at the same time with Penta 2 or Penta3 in the vaccination schedule)	Ensure the un-reached are reached in every district at least four times per year	Develop tools and field guidelines on Rotavirus vaccine introduction to support the process
		Develop advocacy and IEC materials for Rotavirus vaccine introduction
		Update child health card & monitoring tools
		Train health works with focus on Rotavirus
		Disseminate IEC materials
		Immunize children with Rotavirus
		Integrate Rotavirus vaccine in all activities mentioned above for sustaining high immunization coverage
		Conduct a post introduction evaluation
(1) Introduce HPV vaccine nationwide by 2016 and achieve and sustain high immunization coverage for HPV of at least 80% and at least 80% of the districts with 80% HPV3 by 2018 (baseline: 0 as HPV will be introduced in 2016)	Ensure the un-reached are reached in every district at least three times per year	Develop tools and field guidelines on HPV vaccine introduction to support the process
		Develop advocacy and IEC materials for HPV vaccine introduction
		Develop and print adolescent cards & monitoring tools
		Train health works with focus on HPV
		Disseminate IEC materials
		Immunize adolescent girls with HPV integrated in routine vaccination strategies

Table 11.4: Surveillance – Strategies and key activities

National Objective	Strategy	Key Activities
Sustain high quality AFP surveillance performance indicators of 2/100,000 non- AFP rate of under 15 years and a stool adequacy rate of at least 85% at national level by 2015	Strengthen active AFP/Measles and MNT Surveillance at all levels of health system and at community level	Train / Refresh surveillance focal points
		Update and print surveillance manuals, guidelines and training materials
		Disseminate updated manuals, guidelines and training materials
		Conduct regular sensitization of health workers / clinicians
		Conduct regular sensitization of community health workers, leaders, religious, TBAs, traditional healers and involve them in active surveillance
		Provide adequate supply of specimen collection tools and reversal cold chain support
		Provide support for shipment of specimens form reporting sites to national labs and to WHO accredited referral labs
		Conduct quarterly surveillance review meetings
		Regularly supervise and monitor activities and performance of surveillance system at all levels
		Provide regular and timely feedback on performance of each province and district
		Produce and distribute periodic quarterly informative bulletins
		Document Polio Eradication, Measles control/elimination and MNT elimination activities
		Organize periodic meetings with different committees (NCC, NPEC & NTF)
	Strengthen National Measles Lab	Provide essential materials, operational funds and technical support to measles lab
		Perform regular quality control assessment of national measles lab
		Train/ Refresh lab technicians on recent technology and knowledge
Implement Hib, Pneumococcus and Rota disease surveillance	Strengthen surveillance of Hib, Pneumococcal and Rotavirus diseases	Conduct surveillance of Hib-PBM and Rotavirus in sentinel sites in National Pediatric referral hospitals
		Collect and analyze data for program planning
		Train / Refresh lab personnel on Hib and Rota surveillance, including data management
		Conduct Rota disease burden assessment
		Provide essential materials, operational funds and technical support to Hib and Rota Lab
		Perform regular quality control assessment of national Hib and Rota lab
Institutionalize surveillance of AEFI	Strengthen AEFI Surveillance at all levels	Sensitize clinicians and EPI staff on AEFI monitoring and reporting
		Provide adequate tools and training for AEFI reporting
		Include AEFI in national data base for district monitoring
		Monitor AEFI
		Investigate, respond to and report AEFI
		Maintain a register of AEFI

Table 11.5: Advocacy and Communications

National Objective	Strategy	Key Activities
At least 80% of caretakers of children understand the importance of routine immunization and the vaccination schedule by 2015	Create demand for immunization services by communities through social mobilization	Conduct studies on knowledge, practices and attitudes of communities towards immunization
		Develop evidence-based IEC and other social mobilization materials
		Utilize all media and means to reach the families
Develop and operationalize child survival communication strategy	Institutionalize communication as integral part of program implementation	Contract technical assistance for support in developing a child survival communication plan
		Disseminate the communication plan and make it available at all levels
		Orientation of health workers, community health workers, staff of relevant partners
		Review of implementation
		Assess existing communication gaps in reaching communities and develop adequate social mobilization plan
		Update and disseminate the tools and materials
		Conduct regular sensitization of health workers
		Develop and use monitoring indicators
	Commemoration of Africa Vaccination Week	Meetings with religious leaders from vaccination objectors
		Conduct public media campaign
		Conduct focal group discussion

Table 11.6: Vaccine supply, quality and logistics

National Objective	Strategy	Key Activities
Maintain the use of AD syringes and safety boxes in 100% of the vaccination posts in either fixed or mobile teams	Provide sufficient injection safety materials to all service delivery points	Procure vaccines and related injection safety materials from internationally recognized manufactures
		Develop a plan of supply and distribution of injection safety materials
Achieve at least 80% of health facilities with fixed vaccination post with adequate waste management system (adequately built, protected, located and used or with incinerator or collection system for incineration) for EPI waste by 2018 baseline: 20% in 2011	Build capacity and provide means for adequate waste management	Identify priority health facilities in which to build incinerators in district
		Build incinerators in priority health facilities identified in each district
		Produce, print and distribute waste management guidelines
		Train focal persons on waste management in priority health facilities in each district
		Provide orientation to health workers in general on injection safety practices
Establish an effective vaccine management system in all provinces and Districts by 2016	Build capacity and provide means for effective vaccine management	Train health workers on vaccine stock and cold chain management
		Provide supportive supervision on vaccine management & cold chain at all levels
		Install vaccine & related injection materials stock management tools at district level (DVDMT)
		Train focal persons on DVDMT tool at district level
Improve cold chain capacity at national level and in all provinces to meet the needs for new vaccine introduction – rotavirus by 2015 and HPV by 2016	Assess and develop a CC plan	Install WICR at national and provincial levels to increase the storage capacity to meet needs for new vaccine
		Update the cold chain inventory
		Develop a CC rehabilitation plan
		Purchase refrigerators to increase storage capacity at district level, replace old and depleted CC expand the fixed vaccination posts
		Produce and disseminate CC guidelines
		Refresh cold chain Maintenance technicians
		Procure spare parts for maintenance of cold chain

Table 11.7: Program Management

National Objective	Strategy	Key Activities
Human Resources Management Build capacity for adequate program management and implementation in all districts and ensure reliable supportive supervision by 2018	Improve management capacity of district teams	Create District Health Management Teams (DHMT) and build their capacity o planning and management of resources, including financial resources
	Improve quality of data and utilization by districts for decision making process	Train DHMT in adequate data management and use of data for local decision making process
		Institutionalize monthly meetings for data quality analysis at all levels
		Use appropriate tools to monitor timeliness and completeness of reports
		Provide informatics materials and tools for data management process
		Organize periodic meetings (quarterly) for EPI and other mother and child survival program review
		Conduct periodic auto-evaluation of quality of data in each district - DQS
		Conduct periodic external evaluation of data quality (QDA) - quality control to DQS
		Conduct vaccination coverage survey by provinces every two years
	Build capacity on EPI and other mother & child survival programs	Train district teams in planning and implementation of integrated RED approach, in the context of mother and child survival
		Conduct training for districts on MLM
		Develop standard integrated supervision checklist
		Conduct regular supportive supervision to districts
		Provide timely feed back
	Recruitment and training	Update pre & in service curriculum and training materials
		Set up a unit at national level in the Human resources Department, to coordinate pre and in service training related to EPI, including follow up of trainees
		Train and deploy human resources at various levels of the system to fill the vacant positions in the new comprehensive EPI structure at different levels
	Provide incentives to Surveillance and EPI focal persons	Provide incentives to Surveillance and EPI focal persons

Table 11.8: Program Management

National Objective	Strategy	Key Activities
Research / Studies Evaluate and strengthen the National Immunization Program by 20158	Conduct review / assessment and surveys operational research	Conduct periodic reviews of EPI program
		Conduct periodic reviews of surveillance program
		Conduct periodic effective vaccine management assessments
		Conduct research study on barriers for utilization of EPI services
NRA regulatory oversight Strengthen NRA role with regards to vaccine regulations issues (licensing, market realizing and post market surveillance)	Close collaboration between NRA and EPI unit	Training of NRA staff on vaccine regulatory issues
		Inform NRA about the occurrence of any AEFI
Financial Sustainability Increase the national funding for EPI by at least 5% per year baseline in 2011: 24%	Coordination, documentation and information sharing	Disseminate the EPI cMYP and use it as an advocacy document
		Dialogue with MoH Planning Directorate and MoF
		Consultation with local district governments, civil society organizations and private sector
		Consultation with partners
		Coordinate immunization financing through the ICC to ensure adequate and appropriate donor support
		Secure Government co-financing for new vaccines
		Sustain and increase Government contribution to EPI by at least 10% annually
		Conduct regular technical coordinating meetings, ICC meetings, feedback to partners
		Ensure long term financial requirements from national Government - inclusion in the MTEF
Program Efficiency To achieve a vaccine wastage of < 10% for all liquid vaccines in the national EPI program by 2012 (baseline in 2010: not accessed	Improve program efficiency by putting in place vaccine wastage monitoring system	Sensitize health workers at all levels to complete the section on the form AO3 on total vaccine doses expend
		Compile the information on form AO3 on a monthly basis and provide regular feed back to the health facilities
Linking to Other Health Interventions Integrate the MGD4&5 plan in the district plans for its operationalization by all district 2015	Better coordination between MDG4&5 related programs at all levels	Conduct joint planning involving different MDG4&5 related programs
		Joint implementation
		Sharing of available resources
		Joint monitoring, supervision and evaluation of integrated MDG4&5 plan

Table 12.1: GIVS Framework Checklist

	Key activities	Activity included in MYP			
Strategic Area One: Protecting more people in a changing world		**Y**	**N**	**Not applicable**	**New activity needed**
Strategy 1: Commit and plan to reach everyone	Strengthen human resources and financial planning	X			
	Protect persons outside the infant age group	X			
	Improve data analysis and problem solving	X			
	Sustain high vaccination coverage where it has been achieved	X			
	Include supplemental immunization activities	X			
Strategy 2: Stimulate community demand for immunization	Assess the existing communication gaps in reaching all communities	X			
	Engage community members and non-governmental organizations	X			
	Develop communication and social mobilization plan	X			
	Match the demand	X			
Strategy 3: Reinforce efforts to reach the unreached in every district	Micro-planning at the district or local level to reach the unreached	X			
	Reduce drop-outs	X			
	Strengthen the managerial skills	X			
	Timely funding, logistic support and supplies	X			
Strategy 4: Enhance injection and immunization safety	Procure vaccines from sources that meet internationally recognized quality standards	X			
	Ensure safe storage and transport of biological products under prescribed conditions	X			
	Introduce, sustain and monitor safe injection practices	X			
	Establish surveillance and response to adverse events following immunization	X			
Strategy 5: Strengthen and sustain cold chain and logistics	Conducting accurate demand forecasting activities	X			
	Building capacity for stock management	X			
	Effective planning and monitoring of cold chain storage capacity	X			
	Firm management system of transportation and communication equipment.		X*		
Strategy 6: Learn from experience	Regular immunization program reviews	X			
	Operations research and evaluation	X			
	Model disease and economic burden as well as the impact		X		

* Tackled in addressing health system constraints

Table 12.2: GIVS Framework Checklist

GIVS strategies	Key activities	Activity included in MYP?			
Strategic Area Two: Introducing new vaccines and technologies		**Y**	**N**	**Not applicable**	**New activity needed**
Strategy 7: Enhance country capacity to set policies and priorities through informed decision-making	Determine disease burden, as well as the feasibility, cost effectiveness of new vaccines and technologies	X			
	Conduct surveillance, monitor coverage and evaluate the impact of new products	X			
Strategy 8: Ensure effective and sustainable introduction of new vaccines and technologies	Integrate the introduction of each new vaccines into countries' multi-year plans and include a financial analysis	X			
	Information and communication materials	X			
	Surveillance of adverse events	X			
	Surveillance of diseases prevented by new vaccines and strengthen laboratory	X			
Strategy 9: Ensure effective supply of new vaccines and technologies to and within countries	Long-term vaccine demand forecasting	X			
	Long term procurement with adequate financing	X			
Strategy 10: Promote vaccine research and development for diseases of public health importance	Local evidence to influence and prioritize public and private investments in new vaccines and technologies			X	
	Engage local public health authorities and research communities in defining research agendas		X		
	Strengthen the capacity to undertake the research and development of new vaccines		X		

Table 12.3: GIVS Framework Checklist

GIVS strategies	Key activities	Activity included in MYP?			
Strategic Area Three: Linking immunization to other interventions		**Y**	**N**	**Not applicable**	**New activity needed**
Strategy 11: Assess and select appropriate interventions for integration	Assess the national and regional public health priorities and potential impact of joint interventions with a priority focus on Child Survival	X			
	Develop and field-test potential joint interventions	X			
	Tailor integrated packages of interventions to local needs	X			
	Monitoring and evaluating the efficiency, effectiveness and impact of combined interventions	X			
Strategy 12: Establish and optimize synergies	Plan joint interventions at national and district levels	X			
	Special emphasis should be placed on outreach and mobile teams	X			
	Monitor and evaluate impacts of combined interventions	X			
Strategy 13: Make synergies sustainable	Establish joint management, financing and monitoring and evaluation functions	X			
	Pool resources needed to cover operational and other cost	X			
	Quality information to secure sustained community support	X			
	Advocate for further synergy and explore additional linkages	X			

Table 12.4: GIVS Framework Checklist

GIVS Strategies	Key Activities	Activity included in MYP?			
Strategic Area Four: Immunization in the health systems context		**Y**	**N**	**Not applicable**	**New activity needed**
Strategies 14: Improve human resources management	Provide sufficient, adequately paid and trained human resources		X		
	Supportive supervision	X			
	Inventory of human resources needs, engage non-governmental organizations and private sector in the delivery of immunization	X			
	Motivate health workers	X			
Strategy 15: Strengthen immunization program within health sector reform	Document factors of success and failures	X			
	Collective efforts to shape sector-wide policies	X			
	Use the experiences gained in health sector reform	X			
	Preserve the central role of immunization in the context of health sector reform	X			
Strategy 16: Strengthen coverage monitoring and conduct case-based surveillance to guide immunization programs	Expand the existing polio and measles surveillance system	X			
	Build an evidence base of country experience	X			
	Monitoring of district performance at national level	X			
Strategy 17: Strengthen laboratory capacity through the creation of laboratory networks	Expand the existing polio and measles lab. network to include other VPDs	X			
	Provide countries with needed training, equipment and quality control procedures	X			
Strategy 18: Strengthen data management, analysis, interpretation, use and exchange at all levels	Improve data management through regular training, monitoring and feedback at the local level	X			
	Develop enhanced tools (e.g. computer software) for monitoring vaccine coverage, vaccine and logistics management, disease surveillance	X			
	Regularly review district indicators of performance	X			
	Use surveillance and monitoring data to advocate for improved access to and quality of immunization	X			
Strategy 19: Provide access to immunization in complex humanitarian emergencies	Rapid situation assessment of complex emergencies	X			
	Incorporate immunization services in emergency preparedness plans and activities	X			
	Re-establish immunization services in populations affected by complex emergencies	X			
	Include VPDs in integrated surveillance and monitoring systems set up in complex emergencies	X			

Table 12.5: GIVS Framework Checklist

GIVS Strategies	Key activities	Activity included in MYP?			
Strategic Area Five: Immunizing in a context of global interdependence		**Y**	**N**	**Not applicable**	**New activity needed**
Strategy 20: Ensure reliable global supply of high quality, affordable vaccines	Long term forecasting for existing and new vaccines, improving vaccine management skills	X			
	National self-reliance in quality assurance and regulatory oversight	X			
	Promote quality and affordable vaccine production by vaccine manufacturers in developing and developed countries		X		
Strategy 21: Ensure adequate and sustainable financing of national immunization systems	Strengthen national capacity for financial planning	X			
	Commit increased and sustained national budget allocations for vaccines	X			
	Encourage local and district level contribution to health services and immunization programs	X			
	Coordinate immunization financing through the ICCs	X			
Strategy 22: Define and recognize the roles, responsibilities between partners	Develop and actively participate in regional and national partnership bodies	X			
Strategy 23: Improve communication and enhance information dissemination	Consider communication and social mobilization to be an integral part of immunization planning	X			
Strategy 24: Use vaccines in global epidemic preparedness		X			

5. COSTING AND FINANCING OF MULTI-YEAR PLAN 2015-2019

5.1 Costing and Financing Methodology

Having set National Priorities for 2015 the costing of future activities for this cMYP was completed using the standard Costing Tool Version 3.7 and the accompanying User Guide. All data used by cMYP working group to develop this plan was provided by the Ministry of Health. Up to date macroeconomic data was provided by the Planning Directorate (National Health Account, conducted in October 2010) and other taken from The World Bank source. The Human resources provided salary scales and personnel data. The EPI unit staff using their extensive knowledge of EPI structures assisted in the provision of detailed information on coverage, logistics and distribution, and campaigns management. In addition, with regards to cold chain it was also used the national Cold Chain Upgrade Plan (CCUP) developed in May 2013, which was technically supported by WHO and UNICEF, using the WHO cold chain planning tool.

Standard programme inputs such as vaccines, injection materials were priced using the Government of Mozambique paid price for these items in 2014 and WHO EPI forecast tool for projected prices for the period 2015 to 2019. UNICEF price schedules were also used for those items secured through UNICEF, such as GAVI supported vaccines and injection supplies. Cold chain equipment was priced using WHO EPI forecasting tool and local UNICEF prices. FDC and Village Reach, active EPI Civil Society Organization partners, also assisted with information on updated prices of cold chain and vehicles and the investment costs they made for the program recently. The Operational costs for routine and supplementary activities were estimated based on past experiences. Campaign costs for Measles & Rubella (MR) catch up campaign in 2016 and measles follow up in 2019 were assessed based on information provided on the vaccines and operational costs of the most recent campaigns and using WHO EPI forecasting tool. Future costing and financing have been calculated for the period 2015-2019.

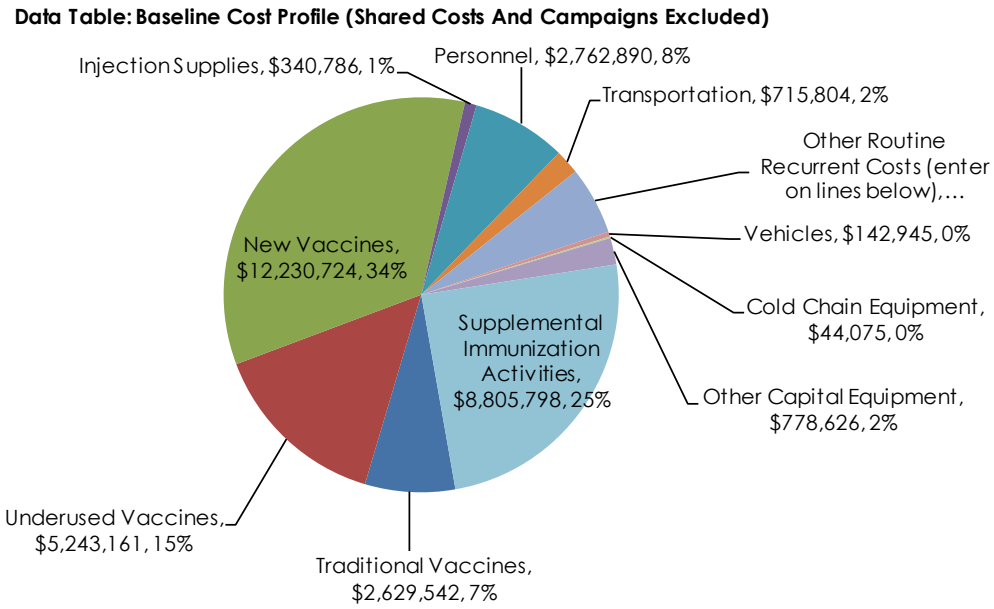
The Programme costing is based on the following assumptions:

- Population growth of 2.14% per annum based on the census data of 2007
- Increased coverage target for traditional vaccines
- SIAs (MR catch up in 2016 and Measles in 2019)
- The introduction of Rotavirus, IPV and MSD vaccines in 2015 and HPV and MR in 2016

5.2 Baseline Cost profile (routine only)

The cost profile of the base year (2013) is shown in figure 4 bellow. The three main cost drivers of the programme are new vaccines (34%), SIA's (25%), and underused vaccines (15%) of the program cost. Others items have cost shares that vary between 8% (personnel) and 0.1% (Cold Chain Equipment).

Figure 2: Baseline cost (routine only)



5.3 Programme Cost Resource requirement for 2015-2019

The future resource requirement of the immunization programme is based on current objectives of the programme, elaborated in programmatic section of the updated Comprehensive Multi-Year Plan (cMYP) 2015-2019.

The total resource requirements for the EPI in Mozambique, excluding shared costs ($6.9 million) are estimated at $344.4 million (table 15). This gives an average of $68.9 million per annum. Out of total, routine immunization accounts for $310.3 million, while the remaining $41.0 is for measles and rubella (MR) catch up campaign in 2016 and measles follow up campaign in 2019, and 2 rounds of national health week to be run annually. Campaigns will cost $19.0 million in 2016 ($9.6 million for vaccines and related injection safety supplies and 9.4 million for MR catch up campaign operational costs (about $0.8/targeted child) and $9.5 million in 2019 ($4.8 million for measles vaccine and related injection supplies and $4.7 million (about $1/targeted child) for operational costs for follow up campaign). National health weeks will cost the remaining $12.5 million.

Even though recognizing that the country conducted its NIDs at national scale in 2005 and therefore the possible risk of polio importation in areas of low OPV3 vaccination coverage and with contacts with people from infected areas (with active Polio transmission), Polio Supplementary Immunization Activities (NIDs) were not considered in this cMYP. One reason is that Mozambique has been declared polio-free and so all the efforts in polio eradication are directed towards active surveillance. The other reason is that the country will be introducing IPV in 2015, in the context of global efforts to withdraw OPV type 2. Indeed, consistent with the

threat posed by low immunization coverage, Mozambique reported 2 circulating vaccine derived poliovirus type 2 (cVDPV2) in 2011. The introduction of IPV and the strengthening of the immunization system with improved OPV and IPV coverage might address the cVDPVs issue. Lastly, Mozambique is not a priority country for polio campaigns, as there is no known active polio transmission within and in the neighbouring countries. Therefore, the country might hardly get fund support for polio campaigns.

In the context of GIVS, the EPI has proposed the introduction of Rotavirus, IPV and MSD vaccines into immunization system in 2015, and HPV and MR in 2016, while HPV demo program will be run throughout 2014 and 2015.

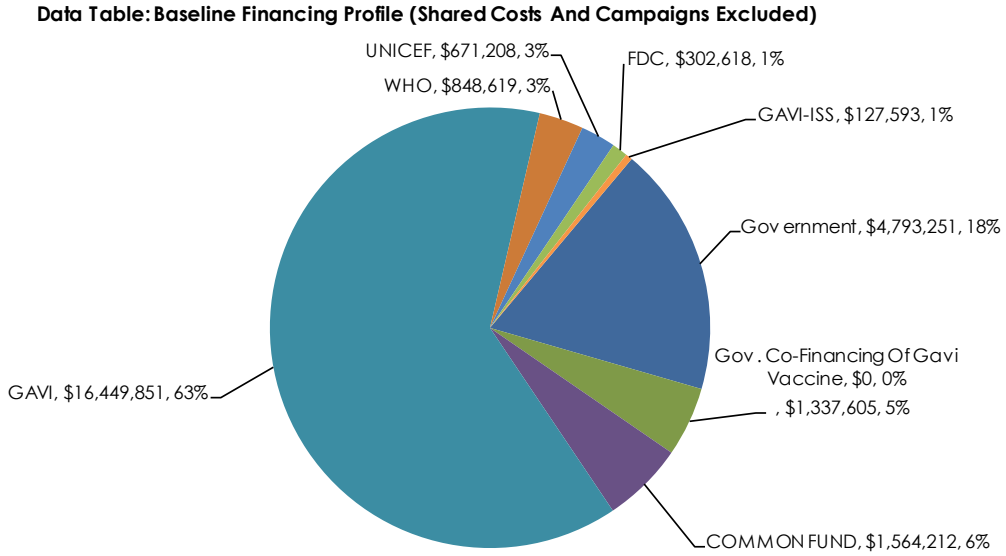
Table 13: Programme costs and future resource requirements*

Cost Category	Expenditures	Future Resource Requirements					Total
	2013	2015	2016	2017	2018	2019	Total 2015 - 2019
Routine Recurrent Costs							
Vaccines (Routine Vaccines Only)	$ 20,103,427	$ 24,224,383	$ 55,604,274	$ 52,825,374	$ 56,869,155	$58,830,075	$248,353,261
Traditional	$ 2,629,542	$ 1,748,869	$ 1,177,777	$ 1,515,914	$ 1,451,563	$ 1,505,249	$7,399,371
Underused	$ 5,243,161	$ 5,769,027	$ 7,130,429	$ 7,168,456	$ 7,433,385	$ 7,705,534	$35,206,831
New	$ 12,230,724	$ 16,706,488	$ 47,296,068	$ 44,141,003	$ 47,984,207	$49,619,292	$205,747,059
Injection Supplies	$ 340,786	$ 774,381	$ 931,730	$ 963,551	$ 1,011,451	$ 1,049,681	$4,730,794
Personnel	$ 2,762,890	$ 3,157,032	$ 3,444,811	$ 3,724,112	$ 3,993,257	$ 4,280,006	$18,599,217
Salaries Of Full-Time Nip Health Workers (Immunization Specific)	$ 1,595,775	$ 1,831,977	$ 1,980,602	$ 2,139,509	$ 2,296,781	$ 2,464,432	$10,713,302
Per-Diems For Outreach Vaccinators/Mobile Teams	$ 877,190	$ 1,005,513	$ 1,113,271	$ 1,208,022	$ 1,292,566	$ 1,382,544	$6,001,916
Per-Diems For Supervision And Monitoring	$ 289,925	$ 319,541	$ 350,938	$ 376,580	$ 403,910	$ 433,030	$1,883,999
Transportation	$ 715,804	$ 919,245	$ 1,113,019	$ 1,270,505	$ 1,036,931	$ 1,189,908	$5,529,608
Fixed Site Strategy (Incl. Vaccine Distribution)	$ 271,824	$ 349,081	$ 422,665	$ 482,470	$ 393,771	$ 451,864	$2,099,851
Outreach Strategy	$ 362,433	$ 465,441	$ 563,554	$ 643,294	$ 525,028	$ 602,485	$2,799,801
Mobile Strategy	$ 81,547	$ 104,724	$ 126,800	$ 144,741	$ 118,131	$ 135,559	$629,955
Maintenance and overhead	$ 465,819	$ 652,000	$ 870,859	$ 971,913	$ 1,102,543	$ 1,248,005	$4,845,320
Cold Chain Maintenance And Overhead	$ 95,630	$ 63,446	$ 136,270	$ 133,120	$ 155,670	$ 203,032	$691,538
Maintenance Of Other Capital Equipment	$ 86,089	$ 298,772	$ 439,011	$ 537,304	$ 639,354	$ 731,303	$2,645,745
Building Overheads (Electricity, Water...)	$ 284,100	$ 289,782	$ 295,578	$ 301,489	$ 307,519	$ 313,669	$1,508,037
Short-Term Training	$ 423,022	$ 699,606	$ 732,895	$ 767,495	$ 803,489	$ 840,969	$3,844,455
Iec/Social Mobilization	$ 291,606	$ 338,519	$ 354,627	$ 371,369	$ 388,785	$ 406,920	$1,860,220
Disease Surveillance	$ 559,037	$ 1,015,557	$ 1,063,880	$ 1,114,106	$ 1,166,356	$ 1,220,761	$5,580,660
Program Management	$ 129,825	$ 292,350	$ 342,927	$ 402,253	$ 471,843	$ 553,472	$2,062,844
Other Routine Recurrent Costs (enter on lines below)	$ 115,721	$ 135,741	$ 159,224	$ 186,770	$ 219,081	$ 256,982	$957,797
Subtotal	$25,907,938	$32,208,814	$64,618,245	$62,597,448	$67,062,891	$69,876,778	$296,364,175
Routine Capital Costs							
Vehicles	$ 142,945	$ 997,868	$ 1,030,613	$ 732,863	$ 695,944	$ 709,863	$4,167,151
Cold Chain Equipment	$ 44,075	$ 134,106	$ 246,943	$ 135,550	$ 80,000	$ 61,736	$658,335
Other Capital Equipment	$ 778,626	$ 1,208,190	$ 600,311	$ 134,773	$ 137,469	$ 125,865	$2,206,608
Subtotal	$965,646	$2,340,164	$1,877,867	$1,003,186	$913,413	$897,464	$7,032,094
Supplemental Immunization Activities (Sia) (Includes Vaccine And Operation Costs)							
Measles-Rubella	1,405,396	0	9,564,664	0	0	4,808,168	$14,372,832
Vaccines & Injection Supplies	$ 1,405,396	$ -	$ 9,564,664	$ -	$ -	$ 4,808,168	$14,372,832
Operational Costs	$ -	$ -	$ -	$ -	$ -	$ -	$0
National Health Week	7,400,402	3,581,520	9,848,679	3,927,950	4,113,625	5,163,476	$26,635,250
Vaccines & Injection Supplies	$ 303,284	$ 430,233	$ 441,869	$ 453,657	$ 465,617	$ 477,781	$2,269,157
Operational Costs	$ 7,097,118	$ 3,151,287	$ 9,406,810	$ 3,474,294	$ 3,648,008	$ 4,685,695	$24,366,093
	0	0	0	0	0	0	$0
Vaccines & Injection Supplies	$ -	$ -	$ -	$ -	$ -	$ -	$0
Operational Costs	$ -	$ -	$ -	$ -	$ -	$ -	$0
Subtotal	8,805,798	3,581,520	19,413,343	3,927,950	4,113,625	9,971,644	$41,008,082
Shared Health Systems Costs							
Shared Personnel Costs	$ 1,056,125	$ 1,170,845	$ 1,288,695	$ 1,386,062	$ 1,475,484	$ 1,570,382	$6,891,468
Shared Transportation Costs	$ -	$ -	$ -	$ -	$ -	$ -	$0
Construction Of New Buildings	$ -	$ -	$ -	$ -	$ -	$ -	$0
Subtotal	$1,056,125	$1,170,845	$1,288,695	$1,386,062	$1,475,484	$1,570,382	$6,891,468
Grand Total	$36,735,507	$39,301,344	$87,198,150	$68,914,646	$73,565,412	$82,316,268	$351,295,819
Routine Immunization	27,929,709	35,719,824	67,784,806	64,986,695	69,451,787	72,344,624	310,287,737
Supplemental Immunization Activities (Campaigns)	8,805,798	3,581,520	19,413,343	3,927,950	4,113,625	9,971,644	41,008,082

5.4 Baseline Financing

The baseline financing of the EPI programme in Mozambique indicates that GAVI bears 64% of the programme cost (63% NVS and 1% ISS). This is followed by Government at 23% (18% for general routine recurrent costs and 5% for Pentavalent DPT-HepB-Hib & PCV vaccines co-financing), then the PROSAUDE Fund (common basket fund) at 6%. Other funding sources have shares that varies between 3% 0.5% (GAVI-ISS). The combined donor contribution is 76.5% of the programme cost. The details are shown in Figure 5 below.

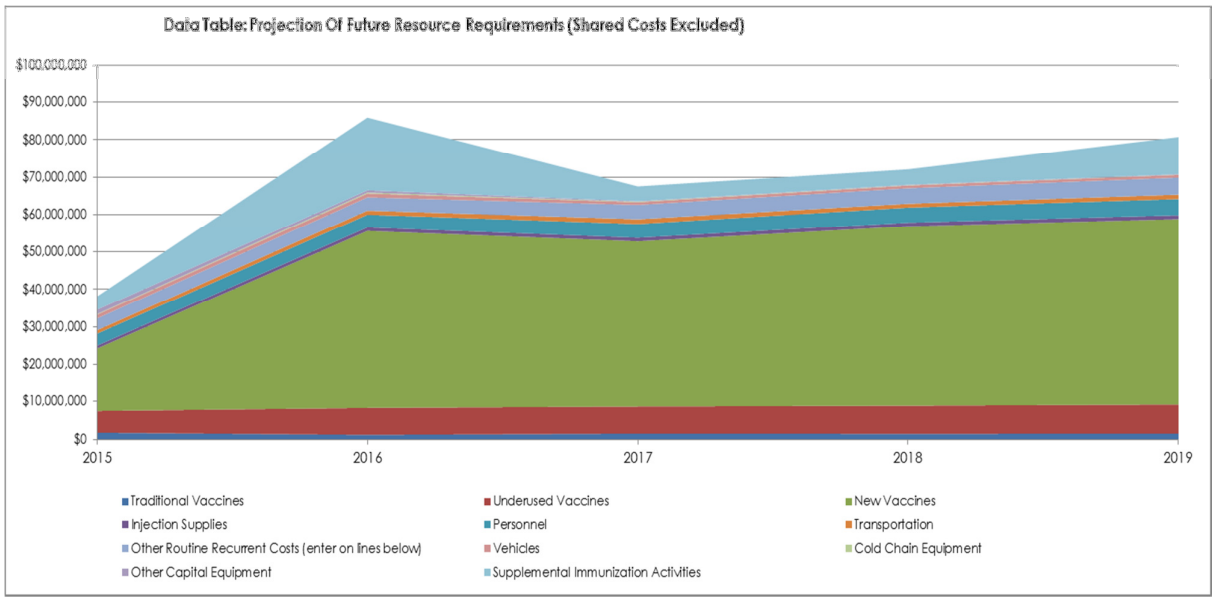
Figure 3: Baseline financing profile (routine only)



5.5 Projected financing from all sources

The composition of the future resource requirement is shown in Figure 9. The resource requirement has increased from around $38.1 million in 2015 to $80.7 million in 2019 (figure 6 and table 16 below). There is a pick of $85.0 million in 2016, mainly attributable to $19.4 million for the MR catch up campaign. In general, the major driving costs are new vaccines (60%), SIA's/health weeks (12%), underused vaccines (10%). Other items have small shares requirements that vary between 6% (recurrent costs) and 5% (personnel) to 0.2% (CC Equipment).

Figure 4: Projection of future resource requirement



5.5.1 Future Financing

Out of the total resource requirement of $ 334.4 million, $206.9 million, representing 86% of required resources, are secured over the life of the plan of the current cMYP (table 16 and figure 10 below). The average funding gap with secured funding as a proportion of total resource need is of 25%. This takes into account that the cost burden represented by pentavalent (DPT-HepB-Hib), PCV, Rota, IPV, MSD and HPV vaccines, amounting at $241.0 million**,** representing 70% ($241.0 million/$334.4 million) of total resources requirements will continue to be borne by GAVI, while the country will continue to co-finance a small portion at $ 0.20/dose, and the SIA's, amounting at $28.5 million, representing 8% will be borne by GAVI (MR catch up) and Measles/Rubella partnership, while the country will co-finance only 50% of the operational costs, for the life span of this cMYP.

Considering the assumptions above, the funding gap with secured resources amounts at $47.5 for the 5 year period (2015-2019), with the following composition: campaigns and national health weeks $40.1 million representing 86% of the gap; other routine recurrent costs with $4,9 million representing 10% of the gap; logistic (vehicles, cold chain and other equipment) with $1.1 million of the gap representing 2% of the gap; transport with 282.0 thousand (0.6%), and personnel with $183.0 thousand (0.4%), as seen in the table 15 and figure 5.

Table 14: Resource Requirements, Financing and Gaps*

Resource Requirements, Financing And Gaps*	2015	2016	2017	2018	2019	Avg. 2015 - 2019
Total Resource Requirements	$38,130,498	$85,909,455	$67,528,584	$72,089,928	$80,745,886	$344,404,351
Total Resource Requirements (Routine Only)	$34,548,978	$66,496,112	$63,600,634	$67,976,304	$70,774,242	$303,396,269
Per Capita	$1	$3	$2	$2	$2	$2
Per DTP Targeted Child	$35	$66	$61	$63	$63	$58
Total Secure Funding	$32,878,574	$65,259,751	$62,527,910	$67,195,783	$69,014,068	$296,876,086
Government	$3,985,569	$3,684,650	$4,059,518	$4,265,993	$4,642,692	$20,638,423
Sub-National Government	$0	$0	$0	$0	$0	$0
Gov. Co-Financing Of Gavi Vaccine	$1,252,040	$1,747,255	$2,032,268	$2,145,252	$2,226,168	$9,402,984
COMMON FUND	$71,002	$731,443	$824,325	$962,746	$856,198	$3,445,714
GAVI	$21,713,584	$53,321,849	$49,932,246	$53,962,261	$55,813,895	$234,743,835
WHO	$350,000	$500,000	$500,000	$525,000	$525,000	$2,400,000
UNICEF	$632,432	$432,448	$180,000	$333,649	$75,000	$1,653,529
USAID-UNICEF	$134,106	$0	$161,171	$117,509	$76,742	$489,528
FDC	$0	$84,741	$0	$0	$0	$84,741
WORLD BANK	$0	$0	$60,000	$85,000	$0	$145,000
GAVI-HSS	$4,739,840	$4,757,364	$4,778,381	$4,798,373	$4,798,373	$23,872,331
VILLAGE REACH	$0	$0	$0	$0	$0	$0
GAVI-ISS	$0	$0	$0	$0	$0	$0
MEASLES PARTNERSHIP	$0	$0	$0	$0	$0	$0
	$0	$0	$0	$0	$0	$0
	$0	$0	$0	$0	$0	$0
Funding Gap (With Secured Funds Only)	**$5,251,924**	**$20,649,704**	**$5,000,674**	**$4,894,146**	**$11,731,818**	**$47,528,266**
% Of Total Needs	**14%**	**24%**	**7%**	**7%**	**15%**	**14%**
Probable Funding:	$5,251,924	$6,381,635	$5,000,674	$4,894,146	$4,872,827	$26,401,206
Government	$271,105	$676,895	$324,038	$150,000	$480,716	$1,902,754
Sub-National Government	$0	$0	$0	$0	$0	$0
Gov. Co-Financing Of Gavi Vaccine	$221,955	$0	$0	$0	$0	$221,955
COMMON FUND	$736,903	$1,004,858	$543,327	$438,785	$711,574	$3,435,447
GAVI	$0	$0	$0	$0	$0	$0
WHO	$575,000	$1,175,851	$425,000	$500,000	$325,000	$3,000,851
UNICEF	$2,628,316	$2,853,572	$3,118,297	$3,075,434	$2,438,160	$14,113,777
USAID-UNICEF	$81,724	$474,794	$217,288	$142,225	$867,377	$1,783,408
FDC	$180,000	$25,000	$43,075	$80,000	$50,000	$378,075
WORLD BANK	$556,921	$170,665	$329,650	$507,702	$0	$1,564,938
GAVI-HSS	$0	$0	$0	$0	$0	$0
VILLAGE REACH	$0	$0	$0	$0	$0	$0
GAVI-ISS	$0	$0	$0	$0	$0	$0
MEASLES PARTNERSHIP	$0	$0	$0	$0	$0	$0
	$0	$0	$0	$0	$0	$0
	$0	$0	$0	$0	$0	$0
Funding Gap (With Secured & Probable Funds)	-$0	$14,268,069	-$0	$0	$6,858,991	$21,127,060
% Of Total Needs	**0%**	**17%**	**0%**	**0%**	**8%**	**6%**

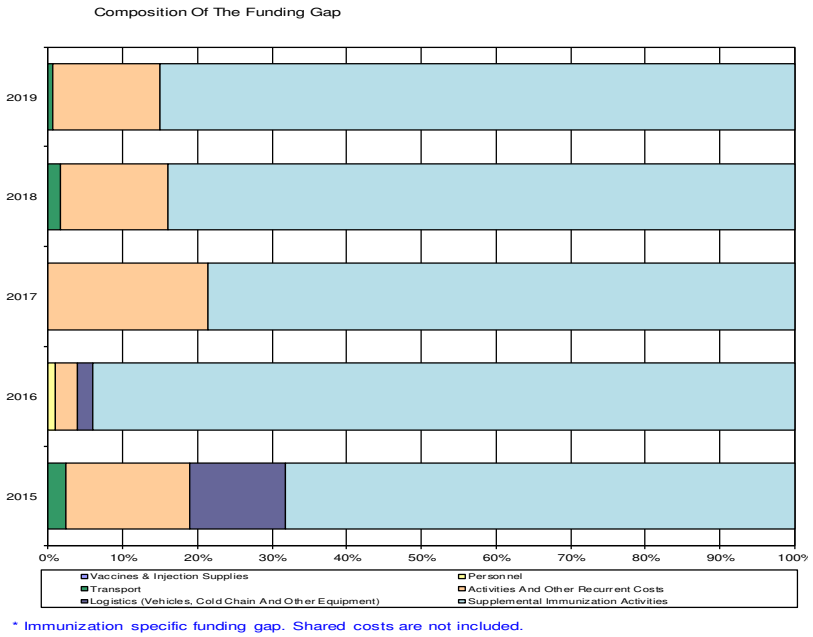
* Shared costs are not included.

Table 15: Composition of funding gap

Composition Of The Funding Gap	2015	2016	2017	2018	2019	Avg. 2015 - 2019
Vaccines & Injection Supplies	$0	$0	$0	$0	$0	$0
Personnel	$0	$182,910	$0	$0	$0	$182,910
Transport	$123,244	$0	$0	$77,702	$81,082	$282,028
Activities And Other Recurrent Costs	$869,298	$614,897	$1,072,724	$702,819	$1,679,092	$4,938,830
Logistics (Vehicles, Cold Chain And Other Equipment)	$677,862	$438,553	$0	$0	$0	$1,116,415
Supplemental Immunization Activities	$3,581,520	$19,413,343	$3,927,950	$4,113,625	$9,971,644	$41,008,082
Total Funding Gap*	$5,251,924	$20,649,704	$5,000,674	$4,894,146	$11,731,818	$47,528,266

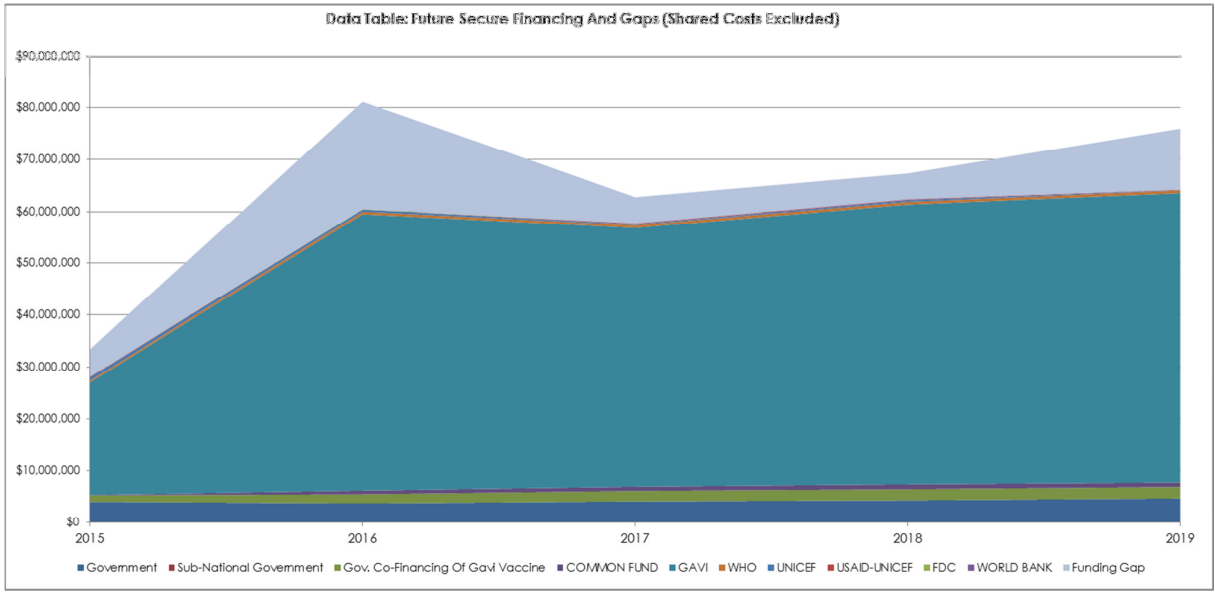
** Immunization Specific Resource Requirements, Financing And Gaps Shared Costs Are Not Included*

Figure 5: Composition of funding gap



Over the same period, the funding gap with secured resources increased from 14% in 2015 to 15% in 2019 (table 15 and figure 11). However, there is an outlier percentage of 24% in 2016, attributable to $19.9 million for MR catch up campaign and NHW, classified as probable funds. In general, all campaigns and NHW funds, representing globally 86% of the total funding gap throughout the 5 year period, have been classified as probably funds. However, it is expected that GAVI and measles/rubella partnership and other internal health partners will finance the campaigns / national health weeks.

Figure 6: Future secure financing and gap



6. FINANCIAL SUSTAINABILITY

The range of annual resources required as a proportion of total health expenditure for the full implementation of the cMYP for the planned period was 2.80% – 4.4% with an average of 4.2% per annum. This represents an increase of 2% from the 2013 baseline (2.5%). By considering only government health expenditure, the range was from 5.1% – 10.4% with an average of 7.5%. This also represents an increase of 2.8 % from the 2032 base line value (4.7%). The details are shown in table 18 bellow.

Table16: Macro-economic and sustainability indicators for cMYP 2015-2019

Macroeconomic And Sustainability Indicators	2013	2015	2016	2017	2018	2019
Reference						
Per Capita Gdp ($)	$ 871	$ 923	$ 942	$ 961	$ 980	$ 999
Total Health Expenditures (The) Per Capita	$ 57	$ 58	$ 59	$ 61	$ 63	$ 65
Population	24,366,112	25,727,911	26,423,623	27,128,530	27,843,933	28,571,310
Gdp ($)	$ 21,222,883,805	$ 23,753,551,414	$ 24,883,792,013	$ 26,058,573,079	$ 27,280,674,997	$ 28,553,204,927
Total Health Expenditures (The $)	$ 1,388,868,401	$ 1,481,155,855	$ 1,566,844,238	$ 1,656,902,472	$ 1,751,614,291	$ 1,851,293,530
Government Health Expenditures (GHE $)	$ 736,100,252	$ 808,562,981	$ 863,893,672	$ 922,683,571	$ 985,180,247	$ 1,051,656,409
Resource Requirements For Immunization						
Routine And Sias (Campaigns) (Includes Vaccines And Operational Costs)	$ 34,856,680	$ 41,295,168	$ 86,162,251	$ 67,467,318	$ 72,108,430	$ 80,684,150
Routine Only (Includes Vaccines And Operational Costs)	$ 26,050,882	$ 37,713,648	$ 66,748,908	$ 63,539,368	$ 67,994,805	$ 70,712,506
Per DTP Child	$ 29	$ 39	$ 66	$ 61	$ 63	$ 63
% Of Total Health Expenditures Resource Requirements For Immunization						
Routine And Sias (Campaigns) (Includes Vaccines And Operational Costs)	2.51%	2.79%	5.50%	4.07%	4.12%	4.36%
Routine Only (Includes Vaccines And Operational Costs)	1.88%	2.55%	4.26%	3.83%	3.88%	3.82%
Funding Gap						
Funding Gap (With Secured Funds Only)		0.57%	1.33%	0.30%	0.28%	0.63%
Funding Gap (With Secured & Probable Funds)		0.21%	0.93%	0.00%	0.00%	0.37%
% Government Health Expenditures Resource Requirements For Immunization						
Routine And Sias (Campaigns) (Includes Vaccines And Operational Costs)	4.74%	5.11%	9.97%	7.31%	7.32%	7.67%
Routine Only (Includes Vaccines And Operational Costs)	3.54%	4.66%	7.73%	6.89%	6.90%	6.72%
Funding Gap						
Funding Gap (With Secured Funds Only)		1.04%	2.42%	0.54%	0.50%	1.11%
Funding Gap (With Secured & Probable Funds)		0.39%	1.68%	-0.01%	0.00%	0.65%
% Gdp						
Resource Requirements For Immunization						
Routine And Sias (Campaigns) (Includes Vaccines And Operational Costs)	0.16%	0.17%	0.35%	0.26%	0.26%	0.28%
Routine Only (Includes Vaccines And Operational Costs)	0.12%	0.16%	0.27%	0.24%	0.25%	0.25%
Per Capita						
Resource Requirements For Immunization						
Routine And Sias (Campaigns) (Includes Vaccines And Operational Costs)	$ 1.43	$ 1.61	$ 3.26	$ 2.49	$ 2.59	$ 2.82
Routine Only (Includes Vaccines And Operational Costs)	$ 1.07	$ 1.47	$ 2.53	$ 2.34	$ 2.44	$ 2.47

Based on the proportion of cMYP resource requirements against total health expenditure, as compared to baseline year, the resources requirements were almost the same in 2015 (1.1 times more) and doubled in 2016 (2.2 times more) and remained at 1.6 and 1.7 times more in 2017-2018 and 2019, respectively. However, this cMYP has a high chance of sustaining its financing for its life span, contingent on the fact that all probable funding will gradually change into secure financing in advance of implementation of activities, with likely approval of the GAVI and Measles/Rubella partnership funding for MR catch up and Measles follow up campaigns, considering that the country is eligible to apply for related available funding windows platforms, and approval of funding for the national health week (NHW) by local partners. In the absence of

that, the programme is unlikely to implement all its stated activities according to the plan. The full implementation of the plan has a huge implication in the country's strive to achieve the Millennium Development Goal 4 and contributing to achieving goals 5 and 6.

6. 1 Immunization Financing

The EPI program financing is largely influenced by the entire health sector financing trends, which has been already analyzed in chapter 1.4 under health sector financing. Therefore, here will only be analyzed the immunization financing.

As of now, with regards to immunization financing, there are very few partners providing financial support to EPI program, namely WHO, UNICEF, USAID (usually channeled through WHO or UNICEF), and two Civil Society Organizations (CSOs, namely Foundation for Community development (FDC) and Village Reach. Part of the funds allocated to EPI are from the Common Basket Fund, also called PROSAUDE Fund. The main NGO's supporting health sector at district level in several provinces is the World Vision, Save the Children, MSF and a number of other small local NGO's.

An analysis of the Overall Expenditure and Financing for Immunization from all sources (Government and donors) as reported in the APR 2011, APR 2012 and APR 2013, shows that total routine EPI expenditures increased by 100% from $13.0 million in 2011 to $26.1 million in 2013. However, it should be noted that 90% of this increase ($ 11.8 million) is due to the weight of new and underused vaccines (NUV), for which GAVI supports 91% ($10.8 million).

Parallel to the increase in the routine immunization expenditure, it is also important to note that the Government expenditure on routine immunization has increased by 2.7 million ($ 0.9 million for co-financing of NUV and 1.8 million for other routine recurrent expenditures inclining traditional vaccines & injection safety devices) between 2011 and 2013 (from $3.4 million to $6.1 million), representing 79% increase in Government allocations to EPI program.

Table 17: Government expenditure on routine vaccination from 2011-2013

	Gov. Expenditure on Vaccine & Inj. Safety Devices	Total Expenditure on Vaccines & Inj. Safety Devices	Gov. Expenditure on Routine Immunization	Total Expenditure on Routine Immunization
2011	$2,121,765	$8,681,765	$3,420,723	$13,034,219
2012	$2,611,824	$8,619,896	$4,771,068	$13,870,849
2013	$3,994,362	$20,444,213	$6,130,857	$26,094,958
Amount Increase (2011 to 2013)	$1,872,597	$11,762,448	$2,710,134	$13,060,739
% increase (2011 to 2013)	88%	135%	79%	100%

The 100% increase in total immunization expenditures and 79% in Government expenditure on immunization between 2011 and 2013 highlights the importance and priority the Government and its Partners gives to immunization program. This level of commitment can be considered an indication that the foreseen increase in the available resources as per the PESS 2014-2019, will reflect in the increased allocation to EPI financing.

6.2 Financial Sustainability Strategies, Actions and Indicators

In the previous sections, the financial challenges of the EPI programme in Mozambique have been highlighted. The programme intends to ensure it can appropriately respond to these challenges in order to be able to implement its programmes. The updated cMYP 2015-2019 includes all the important components of an effective immunization programme. The plan is to address the weaknesses of the programme and at the same time build on its strengths. Therefore, securing less than the funding required for implementing the entire plan may not produce the desired outcome. Therefore, the Government of Mozambique through the MOH intends to take a number of steps that will have positive effects on the overall costs and financing of the plan. To achieve that, the opportunities and threats in raising and effectively managing donor funds are analysed.

6.2.1 Opportunities

After a decade of higher annual economic growth to 6%, the Gross Domestic Product (GDP) per capita was $ 545.5 in 2011. Prospects are still good, with projected growth rates of 7-8%, due mainly to mega-projects of the extractive industry and the public investment in the area of infrastructure. It is expected that this growth will translate into increased fiscal space (expense) for the health as well as creating more opportunities for generating individuals and families' income, and consequent improvement of living conditions and health, well as GDP (PESS 2014-2019).

Moreover, opportunities for funding also exist at international and national levels. The signing of the IHP+ (Compact), and the existence of strong SWAP and other coordination mechanisms (MNCH SWAP, ICC, NCC, etc.) offer opportunities for resource mobilization and its more efficient use. Donors have in the past offered substantial resources for supplementary immunization activities (SIAs), reflecting their high level of confidence in the programme. The EPI programme also receives significant commitment from the Government of Mozambique. This commitment has

been demonstrated through a 79% increase in the Government financing to EPI between 2011 and 2013, as demonstrated above. It is has also been demonstrated through the baseline contribution of 23% (this is so due to high cost of underutilized pentavalent DPT-HepB-Hib and PCV vaccines, mostly financed by GAVI, and for which the Government pays only $0.20 co-financing per dose, national child health weeks (NHW) and campaigns, mostly financed by external funds – if the weight of new and underused vaccines, and campaigns/NHW was factored out ($282.0 million), the Government contribution would be of about 36% (*$22.5 Gov. expected contribution excluding co-financing /$62.4 million total program cost excluding new and underused vaccines, and campaigns/NHW costs).*

6.2.2 Threats

Despite availability of opportunities in Mozambique for improved EPI financing and efficient service delivery, there are some threats the government of Mozambique needs to overcome for better mobilization of resources for immunization financing. The successful implementation of the cMYP and the introduction of new vaccines depend on how the government and the EPI get around these threats.

The recent proliferation of Global Health Initiatives that target specific interventions outside of immunization limits government's ability to secure budgetary support from many traditional donors. The donors instead prefer to channel their funds through these initiatives. Furthermore, there are a number of cost-effective health and other social interventions competing with immunization for the limited government resources, such as Malaria, HIV/AIDS, TB, amongst others.

A country like Mozambique with per capita income of $354 (in 2012, The WB indictors), provides limited scope to mobilize resources domestically. There are untapped opportunities for the integration of the EPI programme implementation with other child survival initiatives leading to synergy and saving of limited resources. The vast terrain of Mozambique makes access health care in certain areas of the country difficult thereby leading to high implementation costs (outreach & mobile brigades). There is a problem of proper vaccine management at all levels of the EPI delivery system to an extent that it could in the long run lead to wastage of scarce resources.

This section outlined the key financial challenges facing the immunization programme in Mozambique. The next section will describe the Government's approach to mobilizing and effectively using financial resources to support its medium and long-term objectives.

6.3 Strategies and actions for financial sustainability

The EPI Multi-Year Plan focuses on improving the quality, coverage, and range of immunization services and other basic MCH interventions. In addition to strengthening the routine immunization programme, supplementary immunization activities are taking place measles elimination. The plan also considers new vaccines introduction as they become available, in the context of GVAP, accelerated disease control and elimination and accelerated Polio End Game.

To address the gaps above described, the country has developed a financial sustainability strategy, which is detailed in the appropriate section bellow, with the objective of capturing more resources for the program over the life span of the cMYP and turn the non secured funds into secured ones.

In order to fill the funding gap, the program relies on the Government resources allocated to the immunization program, which have been increasing over the years, and on direct donor support, mainly provided by WHO, UNICEF, FDC (a civil society organization), The World bank and USAID, and other donors providing support to Government budget under the Common Basket Fund for Medical Supplies and Vaccines, and the Central and Provincial Common Funds for recurrent and capital expenditures. In addition, the country also successfully applied for $25.0 million GAVI/HSS support for the next 5 years, and for new vaccines to be introduced in 2015 (Rotavirus and MSD). The country is also applying for IPV to be introduced in 2015, and will put its application for HPV and MR, both to be introduced in 2017, and for campaigns in 2016 and 2019, taking advantage of diverse funding windows made available by donors. However, the program will focus on increasing internal funding, aiming at gradually reducing the external funding dependence.

There are basically three strategies to be employed, which include the mobilization of additional resources (from both local and external sources); ensuring increased reliability of resources and improving the efficiency of the program.

6.3.1 Mobilizing additional resources (local and external sources)

Mozambique's Country Multi Year Plan 2015-2019 clearly illustrates the expenditure predicted for EPI as well as the gaps both probable and secured for the whole duration of the plan. Therefore, the Country Multi Year Plan shall be presented to various partners with clear identification of opportunities for improving the overall health of the country's children and their mothers. These presentations will be either in formal regularly occurring meetings within the SWAP/ICC or through circulation of the document for other potential partners. This will continue for the entire life of the current cMYP.

Firstly, the programme aims at increasing the proportion of resources assigned by the Ministry of Health to the Expanded Program on Immunization. The increase should be in proportion to the increase in the Ministry of Health's budget and to Mozambique's economic growth. For this to happen, the program will work with the Health Planning Department within the MoH to improve fund allocation to the immunization program through active participation in the development and M&E of both the national health strategic plan (PESS) and the MoH annual plan of action, in order to advocate for the EPI cMYP and the immunization annual PoA.

Secondly, the MOH through its vaccine procurement department will aim at obtaining more competitive prices for traditional EPI vaccines and related injection supplies. This will be done through, direct negotiations with vaccine manufacturers and other relevant firms, taking into account that GAVI is already tackling this issue for new and underutilized vaccines at global level. The present support from GAVI is expected to guarantee supplies up to the end of 2019. Meanwhile, additional partners locally shall be sensitized to support vaccine supplies from the outset.

Thirdly, the program aims to advise and advocate for local governments to mobilize resources for their constituencies to cover some selected cost items, especially for Information, Education and Communication and social mobilization activities. The strategy shall aim to integrate the immunization and MCH program activities within those already being carried out by the local

governments for efficiency gains. This might include, for instance, having local authorities using its structure already in place to mobilizing communities for increased utilization of immunization services, or even to provide transport or fuel for outreach.

Fourthly, avenues for resource mobilization and partnerships with the private sector will be sought. This has proven successful with mass immunization campaigns. For instance, making use of the social responsibility law passed by parliament, advocate with the private sector on the cost effectiveness of investment in the health sector area, with particular emphasis to immunization. Further, the country shell also explores possibilities of taxation in phone call or electricity in order to increase financing for health sector, which would reflect in increased immunization program financing.

Fifthly, probable funds should be turn into secured ones, and EPI will advocate regarding this aspect. There will be targeted resource mobilization from specific partners, based on the respective cost category for which funds are required. For example, funding gaps for SIAs will be taken up with the multilateral partners through whom most of the funds are usually channeled. The program has applied for funding with key partners that could support the introduction of Rotavirus, IPV and MSD vaccines in 2015, and MR and HPV in 2016, and measles SIAs in 2019. It has also applied for funding to support key EPI routine activities throughout the cMYP duration. In this context, the program has engage and will continue to engage with partners such as GAVI, Measles Partnership, UNICEF, WHO amongst others for funds at least 12 months prior to the planned activities. All the above will transform the probable funds into secured ones.

Furthermore, the potential of health insurance has also not been exploited to a large extent in the country. Once this potential is exploited in future, this will be an additional source for health financing.

Lastly, there is a potential for future improvements and sustainability in state funding of the health sector, resulting from the potential increase in government revenue from the natural resources sector. Meanwhile, HIPC and Debt relief initiatives also offer an opportunity for Ministry of Health to advocate for an increased budget allocation to the health sector. These improvements and sustainability in state funding of the health sector will be achieved through advocacy, engaging in permanent dialogue with the Ministry of Planning and Ministry of Finance, as well as engaging the influential people within the National Parliament for approval of pro-health legislation and policies.

6.3.2 Increasing reliability of resources

The financial forecasts for immunization should be incorporated into the MTEF and LTEF planning and budgeting cycles, and updated regularly. The strategy to have an increasing proportion of the vaccine expenditure covered by the Government increases the reliability of the resources required. In addition, the Ministry of Health will protect its contribution to vaccine purchase within its health sector expenditures.

At the national level, resources saved from debt relief and HIPC initiatives and reallocated to health sector should be proportionally increased by the MOH to the EPI programme. The program will advocate for that to happen by conducting a cost-effectiveness analysis of the EPI program and presenting that to the MOH and partners (e.g. SWAP).

The programme will also work with the Health Planning Department, Ministry of Health to improve fund appropriation by building capacity for financial management at all levels. In addition, improvements in cash flow and accountability measures at the implementing units will be the focus to enable faster release of resources and an increase in its allocation.

6.3.3 Improving program efficiency

The EPI program will seek to ensure efficient utilization of its resources with the best possible outcomes. There are a number of issues that lead to inefficiencies within the MOH in general and EPI in particular. Low numbers and skills of health workers is a health sector-wide problem, which leads to poor resource management. Inadequately trained personnel coupled with brain drain are key weaknesses that hamper the implementation of health programs. Therefore, providing staff that could efficiently deliver services is key to the success of the implementation of both EPI and MCH programs. In addition, the EPI and MCH programs will work with the MoH to explore better ways to ensure staff retention and motivation.

High vaccine wastage and poor maintenance of equipment also lead to poor utilization of limited resources. Therefore, putting in place strategies to work towards limiting these inefficiencies shall free such resources and be a strong advocacy tool to attract additional resources. In this regard, the MOH with support from its internal partners has conducted a cold chain inventory and an effective vaccine management assessment, which informed the cold chain and vaccine management improvement plans.

In addition, the EPI program and the MOH will seek to strengthen the monitoring and evaluation capacity of the program. At present, monitoring information especially for vaccine receipts, utilization and wastage are not accurately recorded in a manner that can guide management decision. This has recently started to be implemented at central level and will be replicated at the provincial and District level. The utilization of the vaccine management tools (SMT and DVDMT), the training of the users along with supportive supervision will allow for this to happen. The MOH has recently deployed an EPI logistician in each province to support basically EPI logistic including effective vaccine management.

Moreover, EPI and MCH program is committed at improving the program efficiency through fostering integration and sharing of resources whenever possible at all levels, particularly at service delivery level. For instance, Reach Every District (RED) Strategy, is aiming at more efficient use of resources through better planning, which will improve its efficiency. One of the main aspects of RED strategy is integration during outreach activities, meaning that during outreach EPI activities, other interventions, such as MCH activities, deworming, Vitamin A, mosquito treated bed nets, etc., as described in the basic service package will be offered to the population. The delivery of supplies is another area to explore for efficiency gains through integration with other programs. Integrated Monitoring & supervision will also be considered. This means that in all these areas there shall be co-participation in the allocation and utilization of resources which will improve efficiency for EPI and other MCH program.

6.4 Progress Monitoring

The EPI program shall monitor the implementation of the financial sustainability following up on the strategies outlined, with monitoring indicators. What follows below, are the strategies with key players and indicators for monitoring the progress and the work plan for 2012.

Table 18: Financial sustainability progress monitoring indicators

Strategies	***Key Players***	***Indicator***	***Baseline in 2013***
Resource mobilization			
Expansion of ICC	EPI team, old ICC members	Number of agencies that are ICC members	5
Mobilize additional Government resources	EPI team, Planning Department/ MOH, ICC	EPI budget as a proportion of Government health budget	To be determined soon
Mobilize additional local Government resources	District EPI team, District Director of Health, District Administrator	Proportion of EPI budget funded from district-own resources	0
Mobilize additional resources from new donors	EPI team, Planning Department/ MOH, ICC	Proportion of EPI budget funded from new donors	0
Strategies	***Key Players***	***Indicator***	***Baseline in 2013***
Increase reliability of resources			
Increase reliability of public resources	EPI team, Planning Department/ MOH, ICC	Proportion of increase in program costs funded by government	36% (excluding new & underutilized vaccines, campaigns and NHW's)
Strategies	***Key Players***	***Indicator***	***Baseline in 2013***
Increase program efficiency			
Reduce vaccine wastage	EPI team	Vaccine wastage rate	12%
Increase vaccination offered through static unities	EPI team, Planning Department/ MOH, ICC	Proportion of health facilities offering vaccination services	92%
Increase in number of infants per outreach session through engagement of local actors in mobilizing for EPI and definition of clear criteria for outreach posts	District EPI team, District Directorate of Health	Average number of children per vaccination session in outreach	10 - 15

7. IMMUNIZATION PROGRAMME ANNUAL WORK PLAN FOR 2015

Table 19.1 Immunization program Annual work plan

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost $	Source of Funding				Total Secured Funds	Shortfall
																	Govt. Secured	Govt. Probable	Partners Secured	Partners Probable		
Service delivery and Program Management																						
1. Conduct micro-planning for RED in the context of integrated mother and child survival approach	Yes	District / HF level													EPI, MCH	$150,000	$69,907	$0	$0	$80,093	$69,907	$80,093
2. Timely desimburse funds for implementation of planned activities	Yes	District													Financial Depart (central, prov. & district level)	$0	$0	$0	$0	$0	$0	$0
3. Implement the minimum integrated MCH package in health facilities with fixed vaccination posts as wells as in outreach / mobile sessions in the context of RED	Yes	District / HF level													EPI & MCH at District / HF level	$2,244,300	$84,115	$0	$2,036,941	$123,244	$2,121,056	$123,244
4. Conduct Child Health Days 2 times per year / African Vaccination Weeks	Yes	District / HF level													EPI, MCH & Nutrition at all levels	$3,581,520	$0	$100,000	$0	$3,481,520	$0	$3,581,520
5. Introduce Rotavirus, IPV and MSD Vaccines into NIP **(Detailed Budget and Financing Sources in the New Vaccined Introduction Plan)**	Yes															$0	$0	$0	$0	$0	$0	$0
6. Engage nongovernmental organizations and private sector in the delivery of services	No	District / HF level													District Directorate of Health	$0	$0	$0	$0	$0	$0	$0
7. Involve health workers and community health workers in the identification of missing children at the health facility and community levels, and immunize them	Yes	District / HF level													EPI, MCH & Nutrition District & HF level	$50,000	$0	$0	$50,000	$0	$50,000	$0
8. Conduct regular risk assessment for Polio importation & measles outbreak	Yes	District													EPI & Surv. Central level	$0	$0	$0	$0	$0	$0	$0
9. Conduct Post-New Vaccine Introduction Evaluation															EPI & Surv Central level	$40,000	$0	$0	$40,000	$0	$40,000	$0
10. Create District Health Management Teams (DHMT) and build their capacity on planning and management of resources, including financial resources, and in adequate data management and use of data for local decision making process	Yes	District													Planning Depart. HMIS, Financial Depart in collaboration MCH, Nutrition, EPI & Surv Units at Central & Provincial levels	$100,000	$0	$0	$100,000	$0	$100,000	$0
11. Institutionalize monthly meetings for data quality analysis at all levels	Yes	All levels													MCH, EPI & Surv Units at all levels	$2,400	$0	$0	$2,400	$0	$2,400	$0

Table 19.2 Immunization program Annual work plan

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost$	Source of Funding				Total Secured Funds	Shortfall
																	Govt. Secured	Govt. Probable	Partners Secured	Partners Probable		
Service delivery and Program Management																						
12. Use appropriate tools to monitor district / health facility performance and the timeliness and completeness of reports	Yes	Central, Provincial & District levels													EPI & Surv Units at Central, Provincial & District levels	$0	$0	$0	$0	$0	$0	$0
13. Provide informatics materials and tools for data management process	Yes	District level													EPI & Surv Units at Central & provincial levels	$50,000	$0	$0	$50,000	$0	$50,000	$0
14. Organize periodic meetings (quarterly) for EPI and other mother and child survival program review	Yes	Central & Provincial levels													EPI & Surv Units at Central & provincial levels	$60,000	$0	$0	$0	$60,000	$0	$60,000
15. Conduct periodic auto-evaluation of quality of data in each district - DQS	Yes														MCH & EPI Units at Provincial & District levels	$50,000	$0	$0	$50,000	$0	$50,000	$0
16. Conduct training for districts on MLM	Yes	District / HF level													EPI & Surv Units at Central & provincial levels	$200,000	$0	$0	$172,320	$27,680	$172,320	$27,680
17. Develop standard integrated supervision checklist	Yes	Central													MCH, EPI & Surv Units at Central level	$2,000	$0	$0	$2,000	$0	$2,000	$0
18. Conduct regular integrated supportive supervision to districts	Yes	All levels													MCH, EPI & Surv Units at all levels	$100,000	$0	$0	$0	$100,000	$0	$100,000
19. Provide timely feed back	Yes	All levels													MCH, EPI & Surv Units at all levels	$0	$0	$0	$0	$0	$0	$0
20. Set up a unit at national level in the Human resources Department, to coordinate pre and in service training related to EPI, including follow up of trainees	No	Central & Provincial levels													Central level Training Depart in collaboration with Central levels EPI &	$0	$0	$0	$0	$0	$0	$0

Table 19.3 Immunization program Annual work plan

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost$	Source of Funding				Total Secured Funds	Shortfall
																	Govt. Secured	Govt. Probable	Partners Secured	Partners Probable		
Service delivery and Program Management																						
21. Advocate for deployment of human resources at various levels of the system to fill the vacant positions in the new comprehensive EPI structure at different levels	Yes	All levels													Human Resources Central & provincial level	$0	$0	$0	$0	$0	$0	$0
22. Payment of salaries of full-time NIP health workers															Human Res Central & prov. level	$1,831,977	$1,645,775	$0	$0	$186,202	$1,645,775	$186,202
23. Training / Refresh of NRA staff on vaccine regulatory oversight matters	No	Central level													NRA in collaboration with EPI Unit Central level	$10,000	$0	$0	$10,000	$0	$10,000	$0
24. Disseminate the EPI cMYP and use it as an advocacy document															Central EPI & Surv Units	$0	$0	$0	$0	$0	$0	$0
25. Dialogue with MoH Planning Directorate and MoF															Nat Direc Health	$0	$0	$0	$0	$0	$0	$0
26. Consultation with partners, local district governments, civil society organizations and private sector	Yes	Central, Provincial & District levels													Nat. Prov. & Dist Direct of Health in coordination with all MDG4&5 related Program Units at all levels	$0	$0	$0	$0	$0	$0	$0
27. Secure Government co-financing for new vaccines, sustain and increase Government contribution to EPI by at least 10% annually, and ensure long term financial requirements from national Government - inclusion in the MTEF	Yes	Central level													Central level Planning Depart, Financial Depart in collaboration with EPI Unit	$0	$0	$0	$0	$0	$0	$0
28. Conduct regular technical coordinating meetings, ICC meetings, feedback to partners & Coordinate immunization financing through the ICC to ensure adequate and appropriate donor support															EPI Unit al Central level	$2,400	$1,745	$0	$655	$0	$2,400	$0
29. Monitor vaccine wastage rate at all levels	Yes	All levels													EPI Unit al all levels	$0	$0	$0	$0	$0	$0	$0
30. Conduct joint planning involving different MDG4&5 related programs, implementation, Sharing of available resources, monitoring, supervision and evaluation	Yes	Central & Provincial levels													All MDG4&5 related program Units at Central & Provincial levels	$0	$0	$0	$0	$0	$0	$0

Table 19.4 Immunization program Annual work plan

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost$	Source of Funding				Total Secured Funds	Shortfall
																	Govt. Secured	Govt. Probable	Partners Secured	Partners Probable		
Advocacy and communication																						
31. Develop evidence-based IEC and other social mobilization materials, print and disseminate	Yes	Central level													Central EPI Unit in collaboration with Health Promotion	$40,000	$0	$0	$40,000	$0	$40,000	$0
32. Contract technical assistance for support in developing a child survival communication plan	Yes	Central level													Central EPI, MCH, Nutrition Units in collaboration with Health Promotion	$10,000	$0	$0	$10,000	$0	$10,000	$0
33. Disseminate the communication plan and make it available at all levels	Yes	All levels													All levels EPI, MCH, Nutrition Units in collaboration with Health Promotion	$5,000	$0	$0	$5,000	$0	$5,000	$0
34. Orientation of health workers, community health workers, staff of relevant partners	Yes	Districts													District EPI, MCH, Nutrition & Health Promotion	$121,519	$0	$0	$0	$121,519	$0	$121,519
35. Utilize all media and means to reach the families	Yes	Central, Provincial & District levels													All levels EPI, MCH, Nutrition Units in collaboration with Health Promotion	$130,000	$0	$0	$0	$130,000	$0	$130,000
36. Develop and use monitoring indicators	Yes	District & HF levels													Central EPI, MCH, Nutrition Units in collaboration with Health Promotion	$2,000	$0	$0	$2,000	$0	$2,000	$0
37. Meetings with religious leaders from vaccination objectors	Yes	District & HF levels													All levels EPI, MCH, Nutrition Units in collaboration with Health Promotion	$20,000	$0	$0	$20,000	$0	$20,000	$0
38 Conduct public media campaign and focal group discussions	Yes	Central, Provincial & District levels													All levels EPI, MCH, Nutrition Units in collaboration with Health Promotion	$10,000	$0	$0	$10,000	$0	$10,000	$0

Table 19.5 Immunization program Annual work plan

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost$	Source of Funding				Total Secured Funds	Shortfall
																	Govt. Secured	Govt. Probable	Partners Secured	Partners Probable		
Surveillance																						
39. Train / Refresh surveillance focal points at all levels	Yes	All levels													All levels EPI & Surv Units	$100,000	$0	$0	$0	$100,000	$0	$100,000
40. Conduct regular sensitization of health workers / clinicians, conduct regular sensitization of community health workers, leaders, religious, TBAs, traditional healers and involve them in active surveillance	Yes	District & HF level													Surveillance Focal Persons at all levels	$50,000	$0	$0	$50,000	$0	$50,000	$0
41. Provide adequate supply of specimen collection tools and reversal cold chain support at country level and Provide support for shipment of specimens form reporting sites to national labs and to WHO accredited referral labs	Yes	District & HF level													EPI & Surv Units Central and Provincial levels	$30,000	$0	$0	$30,000	$0	$30,000	$0
42. Conduct active case search of AFP/Polio, Measles, MNT and other notifiable diseases															Surveillance Focal Persons at all levels	$350,000	$0	$0	$350,000	$0	$350,000	$0
43. Conduct quarterly surveillance review meetings	Yes	Central, Provincial & District levels													EPI & Surv Units Central and Provincial levels	$160,000	$0	$0	$0	$160,000	$0	$160,000
44. Regularly supervise and monitor activities and performance of surveillance system at all levels	Yes	All levels													All levels EPI & Surv Units	$50,000	$0	$0	$0	$50,000	$0	$50,000
45. Provide regular and timely feedback on performance of each province and district, and produce and distribute periodic quarterly informative bulletins	Yes	Central & Provincial levels													EPI & Surv Units Central and Provincial levels	$5,000	$0	$0	$5,000	$0	$5,000	$0
46. Document Polio Eradication, Measles control/elimination and MNT elimination activities	Yes	District & Provincial level													EPI & Surv Units Central level	$0	$0	$0	$0	$0	$0	$0
47. Provide incentives to Surveillance and EPI focal persons	Yes	Provinces													EPI & Surv Units at Central level	$52,000	$0	$0	$52,000	$0	$52,000	$0
48. Organize periodic meetings with different committees (NCC, NPEC & NTF)	Yes	Central level													EPI & Surv Units Central level	$2,400	$2,400	$0	$0	$0	$2,400	$0
49. Provide essential materials, operational funds and technical support to measles lab, Hib-PBM, Pneumococcal & Rotavirus labs, for conducting surveillance of these diseases	Yes	Central & Provincial levels													EPI & Surv Units Central and Provincial levels in collaboration with INS and CISM	$80,000	$0	$0	$0	$80,000	$0	$80,000

Table 19.6 Immunization program Annual work plan

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost $	Source of Funding				Total Secured Funds	Shortfall
																	Govt. Secured	Govt. Probable	Partners Secured	Partners Probable		
Surveillance																						
50. Perform regular quality control assessment of national measles, Hib-PBM, Pneumococcal & Rotavirus labs	Yes	Central & Provincial levels													WHO/IST in collaboration with EPI & Surv Units Central level	$10,000	$10,000	$0	$0	$0	$10,000	$0
51. Train/ Refresh lab technicians on recent technology and knowledge and train Data Managers on data management	Yes	Central & Provincial levels													WHO/IST in collaboration with EPI & Surv Units Central level	$32,054	$32,054	$0	$0	$0	$32,054	-$0
52. Sensitize clinicians and EPI staff on AEFI monitoring and reporting, monitor AEFI, investigate, respond to and report AEFI	Yes	HF and Community levels													EPI & Surv focal persons at all levels	$0	$0	$0	$0	$0	$0	$0
53. Provide adequate tools and training for AEFI reporting	Yes	Districts & HF level													EPI & Surv Units Central	$50,000	$50,000	$0	$0	$0	$50,000	$0
54. Include AEFI in national data base for district monitoring & maintain a register of AEFI	Yes	Central, Provincial & District levels													EPI & Surv Units Central and Provincial levels	$0	$0	$0	$0	$0	$0	$0

Table 19.7 Immunization program Annual work plan

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost$	Source of Funding				Total Secured Funds	Shortfall
																	Govt. Secured	Govt. Probable	Partners Secured	Partners Probable		
Vaccine supply, quality and Logistics																						
55. Procure vaccines and related injection safety materials from internationally recognized manufactures	Yes	Vaccine & Injection safety materials Producers / Suppliers													CMAM in coordination with EPI Unit Central level / UNICEF	$24,998,763	$3,285,179	$0	$21,713,584	$0	$24,998,763	$0
56. Distribution of vaccines and related injection safety materials	Yes	Districts / HF level													EPI Units at Central, Provincial and District levels	$75,000	$0	$0	$75,000	$0	$75,000	$0
57. Train health workers on vaccine stock and cold chain management	Yes	All levels													EPI Units at Central, Provincial and District levels	$100,000	$39,907	$0	$60,093	$0	$100,000	$0
58. Provide supportive supervision on vaccine management & cold chain at all levels	Yes	All levels													EPI Units at Central, Provincial and District levels	$75,000	$0	$0	$75,000	$0	$75,000	$0
59. Train / Refresh focal persons on DVDMT tool at district level and install vaccine & related injection materials stock management tools at district level (DVDMT)	Yes	Districts / HF level													EPI Units at Central, Provincial and District levels	$100,000	$30,000	$0	$70,000	$0	$100,000	$0
60. Purchase refrigerators to increase storage capacity at district level, replace old and depleted CC expand the fixed vaccination posts	Yes	Prov, District & HF levels													Central level Procur. Unit in coordin with Central EPI Unit	$134,106	$0	$0	$134,106	$0	$134,106	$0
61. Produce and disseminate CC guidelines	Yes	All levels													Central level EPI Unit in coordin with Maiten. Depart	$5,000	$5,000	$0	$0	$0	$5,000	$0

Table 19.8 Immunization program Annual work plan

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost$	Source of Funding				Total Secured Funds	Shortfall
																	Govt. Secured	Govt. Probable	Partners Secured	Partners Probable		
Vaccine supply, quality and Logistics																						
62. Procure spare parts for maintenance of cold chain and perform maintenance activities	Yes	All levels													Central level Procurement Unit in coordination with Central EPI Unit	$63,446	$0	$0	$63,446	$0	$63,446	$0
63. Procure transport for EPI and Surveillance activities	Yes	All levels													Central level Procur Unit in coordin with Central EPI Unit	$997,868	$0	$0	$997,868	$0	$997,868	$0
64. Maintenance of EPI offices, other capital equipment, water, electricity and overhead	Yes	All levels													All levels Maiten Depart in coordin with EPI Unit	$588,554	$90,702	$171,105	$46,187	$280,561	$136,889	$451,666
65. Build Regional / Provincial Vaccine Stores	Yes														Planing Deprt, Finance, Procurement Unit in collaboration with EPI at National & Prov. Levels	$864,000	$0	$0	$864,000	$0	$864,000	$0
66. Other capital investment	Yes	All levels													All levels Maintenance Depart in coordin. with EPI Unit	$344,190	$0	$0	$344,190	$0	$344,190	$0
															GRAND TOTAL	$38,130,498	$5,346,783	$271,105	$27,531,791	$4,980,819	$32,878,573	$5,251,925

8. LIST OF APPENDICES

1. cMYP costing tool
2. WHO logistics forecasting tool