



**Republic of Mozambique**

**Ministry of Health**

**National Immunization Program**

**Comprehensive Multi-Year Plan (cMYP)  
2012 – 2016**

**May, 2011**

## 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 with DTP3 has increased from 47% in 1997 to 63% in 2003 and up to 64 in 2008, 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, lack of updated EPI manual and technical guidelines, and non functional ICC, etc.

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). Annual achievement targets will be 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 introduction of pneumococcal vaccine 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 2.5, 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 2012-2016.

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 2012-2016, external funds represent 87% of the total immunization cost and 89% of total vaccine and injection safety supplies cost.

The final section of the cMYP sets out a comprehensive plan for 2012 setting out objectives and strategies for strengthening current service provision by increasing coverage, improvement of the

cold chain, reducing dropout and provision of training for the introduction of the pneumococcal and rotavirus vaccines in 2012 and 2014, respectively.

The comprehensive Multi-Year Plan 2012-2016 is linked to the National Health Sector Plan 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	Hemophilus 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, between the parallels 10°27' and 26°52' of latitude south and between the meridians 30°12' and 40°51' longitude south. To the North, it shares the border with Tanzania; to the West with Malawi, Zambia, Zimbabwe and Swaziland; and to the South with South Africa.

In the Eastern strip is the Indian Ocean covering an area of 2,470 km. This area is of vital importance both for Mozambique and for the hinterland neighboring countries linked to the sea through the Mozambican ports. The area of the Mozambican territory is 799,380km<sup>2</sup>.

The country's population in 2010 was estimated at 22.4 million inhabitants (INE projections based on the 2007 population census) with an average population density of 25.6 inhabitants per square km. According to the same census, the current natural population growth rate is 2.14% and the average life expectancy at birth is 41.8 years. The illiteracy rate is 60%, females representing the highest rate with (71.3%). The population density, as well as the main indicators of the health status of population, present a great variation between the Provinces. According MICS 2008, the infant mortality rate is 93/1000 and the proportion of people under 15 years old is 44.5% of the population.

## 1.2 Macroeconomic situation

Mozambique is a developing country with an annual per capita income of US\$294 (2007) and with a human development index of 0.479 (2007), which is one of the lowest among all the countries of the Southern Africa Development Community – SADC (World Bank Indicators, 2007). The country witnessed a permanent growth rate of the Gross Domestic Product (GDP) of about 8% in real terms between 2004 and 2007 (INE: Anuário Estatístico, 2007).

Despite the considerable achievements in poverty reduction in the past years, in 2002/03, 54% of the population continued living below the poverty line, with limited access to health and

education (PRSP, 2005-2009). The Gini Index remained about 0.40 between 1997 and 2003 (Republic of Mozambique: Millennium Development Goals Report 2005), showing high inequalities between the population and where urban areas presented the worse ratios.

Between 2000 and 2006, the macroeconomic framework remained relatively stable with a positive trend. The average inflation rate was about 12%. Despite the increase in the Gross Domestic Product (GDP), the public expenditure remained at about 15% of the GDP and the public finance presented a budget deficit of above 10% before grants (PRSP 2005-2009).

The main productive activities occur in the sectors of agriculture, fisheries, mineral and in the mega projects related with natural resources. The construction sector has been very much encouraged in the past years by the cumulative effects of the investment policies on the infrastructure and foreign investment.

The main exports products are sugar cane, cotton, tobacco, cashew, prawns, mineral such as aluminium and coal and hydroelectric power generated by the Cahora Bassa Dam in the central part of the country. The country imports mainly fuel, consumer goods and manufactured products (INE Website). The dependence rate of the economically active population is 89%. Most of the population in the productive age work in activities related with the primary sector of the informal type (INE/IFTRAB 2004/2005).

### **1.3 Epidemiological Profile**

Mozambique has an epidemiological profile that is typical of developing countries, with significant levels of infant malnutrition and predominance of infectious diseases (malaria, tuberculosis, AIDS). This profile is worsened by natural disasters such as droughts and floods (Ferrinho e Omar, 2004), making the population vulnerable to diseases of epidemiological nature, with emphasis on cholera, dysentery and other diarrheal diseases.

Table 1. Selected indicators of the health status of the population, Mozambique.

Indicator	1997 (DHS)	2003 (DHS)	2008 (MICS)
Life Expectancy	44	40.7	
Poverty Incidence	69.4%	54%	
Infant Mortality rate	135	124	93
Child Mortality Rate < 5 years	245	178	138
Maternal Mortality Ratio	690/100,000 NV	408/100,000 NV	
Net Schooling Rate (total)			
Population with access to sanitation services	23.8%	36% (2006)	43% (2008)

Children die and suffer due to low birth weight, avitaminosis associated to high levels of poverty and to the degree of food insecurity in the country. Four out of ten children (44%) under 5 year old are shorter in relation to the height that they are deemed to have at their age or suffer from chronic underfeeding, and 4% suffer from acute malnutrition (low weight to the height) (MISAU, BdP 2007).

Other causes of death in children under five years are prematurity, neonatal infections, malaria, diarrhoeal diseases, bronchopneumonia and other acute respiratory infections, anaemia, measles, meningitis and other preventable diseases, trauma (accidents, burning, mines, intoxications), tuberculosis, intestinal and vesical parasitosis, asthma, rheumatic fever, etc (MISAU, BdP 2007).

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, BdP 2007).

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.

## **1.4 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. Among these and up to now, 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.

In order to increase the response capacity of the system, there are 10 provincial health directorates, 144 district health, women and social welfare directorates that supervise and follow up the implementation of health care provision in 1,277 health units (MISAU, 2007).

The NHS is organized into four levels of care, levels I and II, the most peripheral ones, meant for implementing the Primary Health Care (PHC) strategy and serve as a referral for the clinical conditions that do not have response at Level I. Levels III and IV are fundamentally meant for more specialized curative care and serve as a referral for the immediately inferior levels.

The for-profit private sector is gradually developing, especially in the big cities where the number of individual and collective private clinics is increasing in the different specialties, but it is constrained to the increase of household's income. The current health policy in force recognizes the role of the private sector in providing health care to the citizens (MISAU, 2007).

Provision of care by the non for profit private sector is, essentially, done by foreign Non-Government Organizations (NGOs) and some religious entities in common agreement with the Ministry of Health.

The national NGOs are gradually being developed and mainly implement community health programs in the areas of prevention, disease control, information and education. These partnerships have not yet been sufficiently explored in terms of their maximum potential, particularly in the disadvantaged regions (NHA, October 2010).

The non-allopathic Sector is dominated by traditional medicine practitioners, herbalists, and others. The typology of these practitioners is not updated. The current health policy is in favor of collaboration with the traditional medicine sector.

In general, PHC remains the dominant strategy of health intervention to reduce the high rates of morbidity and mortality due to transmissible diseases. The reproductive health problems associated with high rates of maternal mortality are also priority areas in the sector's programme. All these interventions in the framework of PHC are important components of the Action Plan for the Reduction of Absolute Poverty (PRSP).

### 1.5 Health Financing

The financing to the Public Health Sector comes from: a) internal funds; b) external funds, consisting of the Common Fund and of projects managed by the agencies themselves; and c) revenues of the sector, own and entrusted ones. Both internal and external funds have been increasing in the last years.

Table 2. Health expenditure 2004-2008

(Million of Mt)

Source	2004	2005	2006	2007	2008
State Budget	2,730	2,704	2,808	3,302	3,588
Common Fund	1,638	2,756	2,574	3,250	1,924
Vertical Fund	2,210	3,380	3,666	3,900	7,800
Total Expenditures	6,578	8,840	9,048	10,452	13,312

Source: MOH, National Health Account, October 2010.

Exchange-rate applied, 1USD = 26 Mt

Concerning external funds, the sector benefits from the support of about 26 bilateral and multilateral cooperation agencies. The loans also constitute external financing, loans provided by development banks and managed by the Ministry of Health in order to implement specific projects and grants that are provided and managed by a variety of mechanisms (NHA, October 2010).

Some grants are channeled to the sector through the Common Fund called PROSAUDE II. There are also grants that finance specific projects (vertical funds) managed by the Ministry of Health at central, provincial and district levels or managed directly by the financing agencies or by Non-Government Organization (NHA, October 2010).

The sector's, revenues or donated revenues, consist mainly of consultation and user fees and revenues from the sale of medicine, which represent a modest contribution.

The public sector is moving towards gratuitousness of services. In the current situation, the children under five years and pregnant women do not pay for health services. The chronic patients are also exempted from consultation and admission fees. Medicines in Mozambique are subsidized by the government.

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. The recent signing of IHP+ compact is an effort towards alleviating these problems (NHA, October 2010).

## **1.6 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, 2007-2012).

The lack of human resources capacity is by far the greatest barrier to overall health sector delivery in Mozambique. 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

Routine immunization is administered to all children under five years in all health service delivery points. 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 following routine antigens are administered to children under the age of one; BCG, OPV, DTP/HepB, Measles. Routine Tetanus Toxoid is administered to women of childbearing age. The immunization schedule in Mozambique is shown in Table 3

Table 3. Immunization schedule in Mozambique

Vaccination for Infants			Women of child bearing age (15-49 years)		
Age	Visit	Antigen	Visit	Interval	Antigen
Birth	1	BCG, OPV0	1	0 (as early as possible)	TT1
6 weeks	2	DTP-HepB1, OPV1	2	At least 4 weeks after TT1	TT2
10 weeks	3	DTP-HepB2, OPV2	3	At least 6 weeks after TT2	TT3
14 weeks	4	DTP-HepB3, OPV3	4	At least 1 year after TT3 or in subsequent pregnancy	TT4
9 months	5	Measles	5	At least 1 year after TT4 or in subsequent pregnancy	TT5
6-59 months		Vitamin A Supplement		All post-natal mothers	Vitamin A Supplement

Source: MOH, EPI unit

Table 4. Vitamin A supplementation schedule in Mozambique

Micronutrient supplementation to children and post-partum women				
6-59 months	Every six months	Vitamin A Supplement	All post-natal mothers	Vitamin A Supplement

Source: MOH, Nutrition unit

## **2.1 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.

## **2.2 The EPI Structure**

Within the MoH structure, the EPI is located in the Department of health promotion within the national directorate for health promotion and disease control. Its structure at central and provincial level is shown in the figures 1 and 2. The central level has a role of setting policies, standards and priorities, building capacity, coordinating with partners, mobilizing resources, procurement of inputs such as vaccines and injection safety materials in coordination with CMAM, monitoring and technical support to provincial level. In turn, the provinces are responsible for capacity building, monitoring, supervision and technical support to districts. The districts and their health facilities are responsible for planning, management and delivery of EPI services. At that level, immunization is part of primary health care (PHC) and is integrated into the child survival activities. The community is involved in mobilizing and bringing children for immunization.

Figure 1. EPI new structure at Central Level

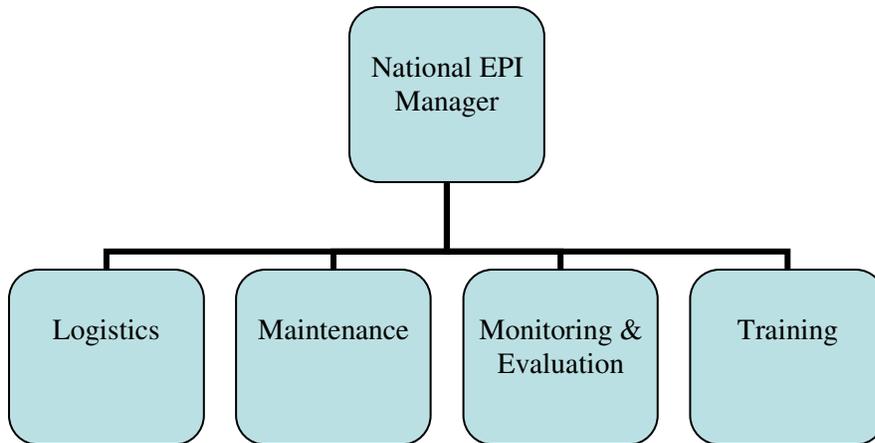
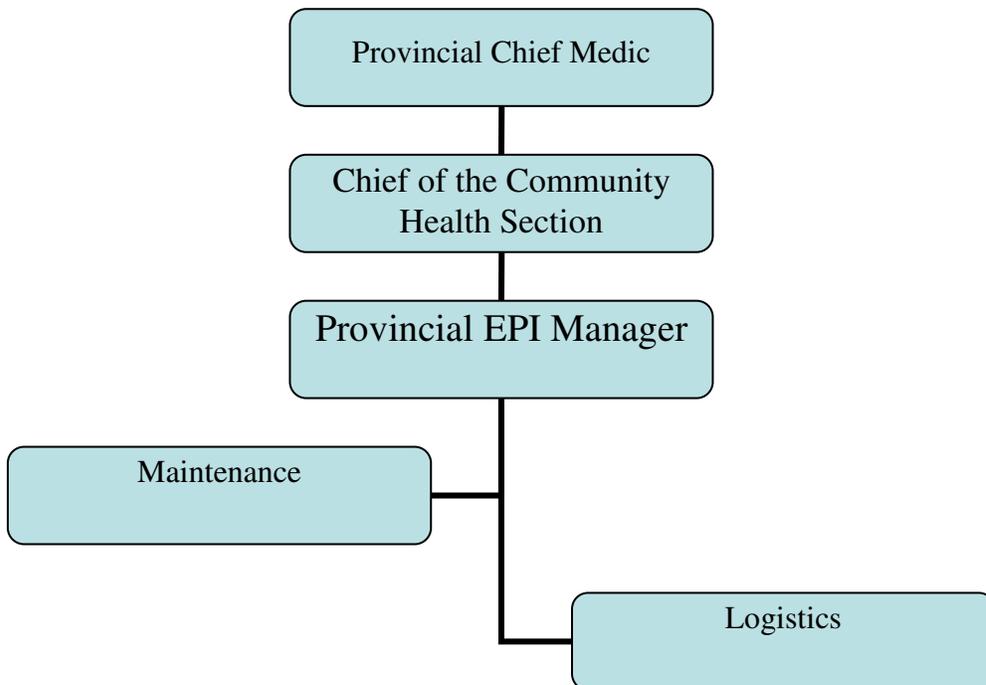


Figure 2. EPI New Structure at provincial level



## 2.3 Situation Analysis of the National Immunization Programme

### 2.3.1 Routine Immunization

Since its inception in 1979 up to 2000, the EPI Programme in Mozambique offered vaccination for the six traditional vaccines. In 2001, HepB vaccine as tetravalent vaccine (DPT-HepB) and AD syringes were introduced under GAVI support Phase I. Hib in pentavalent formulation was introduced in 2009 under GAVI Phase II support.

Although, immunization services focus on children under one 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, SIAs and their respective percentages of the population estimated using the 2007 population census projected to following years is shown in table 4.

Table 4. Target Population, Mozambique 2012 – 2016

	%	2011	2012	2013	2014	2015	2016
Total Population		23,049,621	23,700,715	24,366,112	25,041,922	25,727,911	26,423,623
Infants 0-11 months	4.3	991,107	1,019,104	1,047,715	1,076,775	1,106,272	1,136,186
Under 5 years	17.1	3,941,485	4,052,822	4,166,605	4,282,169	4,399,473	4,518,440
Population 6-59 months	16.4	3,780,138	3,886,917	3,996,042	4,106,875	4,219,377	4,333,474
Pregnant women	5.0	1,152,481	1,185,036	1,218,306	1,252,096	1,286,396	1,321,181
Women Child Bearing Age	24.9	5,739,356	5,901,478	6,067,162	6,235,439	6,406,250	6,579,482

Projections from 2007 population census – INE.

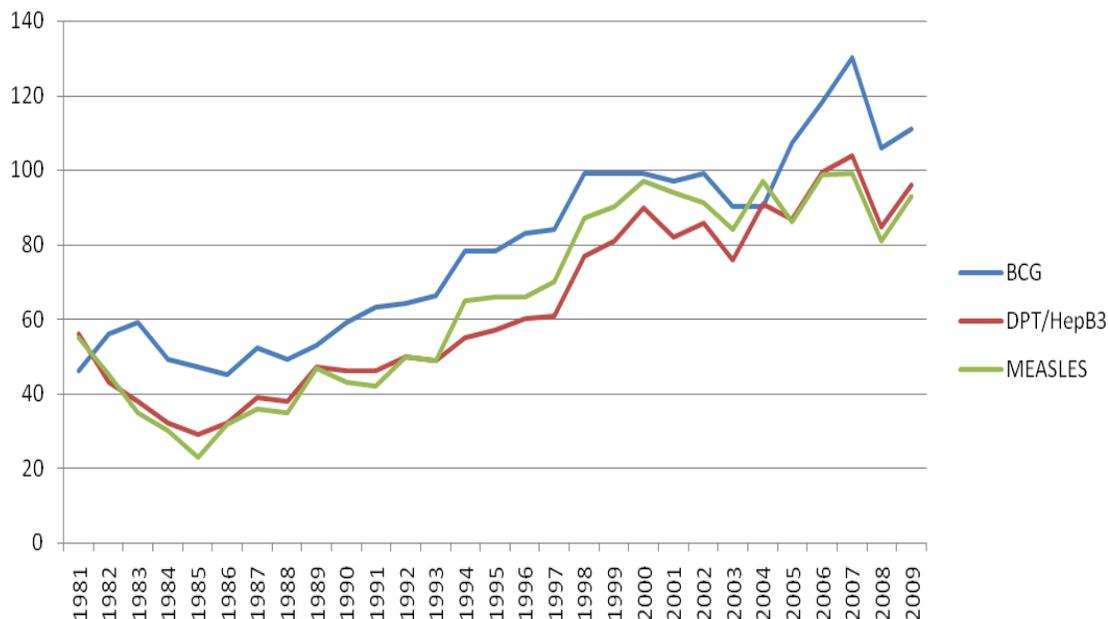
#### 2.3.1.1 EPI Service Delivery

In 2010, immunization services were offered in approximately 1160 health centres, which represent 90% of health unities in the existing health network with fixed vaccination sites. However, less than 50% of the country population is served by the existing health network. 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. The latter was implemented in 33 districts in 2008 and expanded to 66 in 2009. Limitation in funds availability prevented further expansion according to the plan, which was to increment 33 district per year until all were covered by 2012. 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.

According to administrative data, vaccination coverage for the vaccines given in the national EPI program increased from 50% up to 100%, and sometimes above this value, between 1981 and 2009, as shown in the graphic below (figure 3). Meanwhile, results from different community surveys (DHS 1997, DHS 2003 and MICS 2008) indicate that the proportion of one year old children fully immunized has increased from 47% in 1997 to 63% in 2003, and then down to 60.1% in 2008 MICS survey. Singularly, the 2003 DHS reported coverage of 71.6% for DPT3 and 69.6% for OPV3. For 2008 MICS survey it was 74.1% for DPT3 and 73.3% for OPV3 (table 5).

Figure 3: Vaccine coverage per antigen, Mozambique, 1981-2009



In general, despite the progress seen between 1997 and 2008, the overall coverage is still low and is not equally spread throughout the country. The 2003 DHS survey and 2008 MICS survey found national measles coverage rates of 76.7% and 74.1% respectively (table 5).

Table 5. Coverage surveys for DHS 1997, DHS 2003 and MICS survey 2008 for BCG, DPT and Measles, per province and comparison with administrative data for 2008

Província	BCG				DPT3				Measles			
	1997	2003	2008		1997	2003	2008		1997	2003	2008	
	DHS Survey	DHS Survey	MICS Survey	Administ. Data	DHS Survey	DHS Survey	MICS Survey	Administ. Data	DHS Survey	DHS Survey	MICS Survey	Administ. Data
Niassa	82,1	81,4	91,3	138	59,3	54,6	91,3	138	59,4	51,9	74,9	138
Cabo Delgado	69,5	85,3	93,2	120	28,9	68,9	93,2	120	40,2	80,2	83,8	120
Nampula	77,0	83,5	82,2	156,5	46,5	61,8	82,2	156,5	43,9	69,1	67,1	156,5
Zambézia	45,7	71,9	75,1	89	30,4	53	75,1	89	30,9	63,3	61,7	89
Tete	93,5	88,3	83,0	109	62,9	63,6	83,0	109	64,8	72,0	60,0	109
Manica	82,9	93,1	87,8	88,5	62,8	73,6	87,8	88,5	66,8	81,5	69,2	88,5
Sofala	70,6	86,2	93,7	100,6	64,5	77,1	93,7	100,6	60,7	74,7	82,9	100,6
Inhambane	92,2	99,1	98,3	85,9	82,5	93,6	98,3	85,9	80,6	92,9	86,9	85,9
Gaza	96,7	97,1	97,3	66,8	84,7	90,4	97,3	66,8	64,3	91,7	83,4	66,8
Maputo Província	88,9	100,0	90,1	49,2	74,1	98	90,1	49,2	80,0	95,2	87,4	49,2
Maputo Cidade	98,8	99,7	97,7	90,2	88,1	97	97,7	90,2	90,6	96,9	93,0	90,2
Total	78,1	87,4	87,5	105,7	59,6	71,6	87,5	105,7	57,5	76,7	74,1	105,7

### 2.3.1.2 Data management

As demonstrated in the DQA conducted in 2002 as well as in the EPI and surveillance reviews in 2006 and 2007, respectively, data management problems also include issues of data accuracy, completeness, timeliness and consistency between different levels. Based on the results of the 2002 DQA work the verification factor for Mozambique was 55.4% that decided the system not to be validated (unreliable) as this is below the GAVI recommended score of 80%. This low verification factor has largely been attributed to poor documentation and storage of data. Tally sheets were largely not available at the health unit levels and resultantly this negatively impacted on the recounted vaccines administered. In addition, there are concerns about the reporting system and fluctuations in reported results, reflecting poor Program data management.

The country has tried to institutionalize Data quality self assessment in 2008 and 2009 and implementation has started to address the gaps in data quality in the Immunization program.

### 2.3.1.3 Vaccine Management and Cold Chain

Vaccine management at central level is well organised with accurate records at central level; stock procurement is planned well in advance; however the procurement and regulations are done by the pharmaceutical department not involving EPI, which only does the forecasting.

There are concerns regarding vaccine management, which include amongst others, the inexistence of stock management at the district level and therefore, no accurate assessment of the actual doses used at health facility level. At this level, wastage rates are not known.

Table 6. Score for the different indicators of the VMA by level, Mozambique, 2009

Indicators	Performance (%)			
	Central	Level	Service Level	Average
Vaccine arrival process	100			100
Vaccine storage temperature	95	73	67	78
Cold store capacity	33	47	72	51
Building, cold chain equipment and transport	91	57	63	71
Maintenance of cold chain equipment & transport	85	57	51	64
Stock management	90	57	38	62
Effective vaccine delivery	72	62	57	64
Correct diluent use for freeze dried vaccines	100	37	57	65
Effective VVM use	100	93	70	88
Multi Dose Vial Policy	100	95	91	95
Vaccine wastage control	100	77	44	74
<b>Total</b>	<b>88</b>	<b>65</b>	<b>61</b>	<b>71</b>

The recent vaccine management assessment exercise has documented some major gaps in the cold chain capacity at sub-national levels, the monitoring of vaccine wastage, management of vaccine stocks, adherence to VVM indicators for vaccine quality, maintenance capacity for EPI equipment at provincial level, availability of transport facilities for EPI activities, and in the management skills. It was also noted that there were various brands of cold chain equipment in the country, some of which are not of recommended standards.

Outdated cold chain and poor logistics contribute to the problems of EPI in Mozambique. Poor cold chain exists in almost all districts except in districts of Cabo-Delgado, Nampula and Zambézia provinces, which benefited from complete refurbishment of their cold chain equipment. Knowledge of cold chain at all levels of health delivery system is low and the vaccine management assessment score in 2009 was 71% on average, but as low as 61% at health facility level.

#### **2.3.1.4 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.

#### **2.3.2 Vaccine Preventable Disease (VPD) Surveillance**

Mozambique initiated the AFP/Polio surveillance in 1998 in the context of Polio eradication. In 2006 the country introduced Measles case based surveillance. AFP surveillance performance has shown significant improvement since 2002, achieving certification levels in 2003, a situation maintained until 2005. However, due to high staff turnover, from 2006 through 2008, the non polio AFP rate has declined from 1.6 per 100,000 children > 15 years of age in 2006 to 1.4 in

2007 and then to 1.3 in 2008. With reappointment of surveillance focal points in 2009, the country attained the non-Polio AFP rate of 2.6 surpassing the minimum non-Polio AFP operational rate. However, there are concerns with suboptimal performance at sub-national level. Further, in 2009 about 30% of districts were silent, raising concerns that these districts might not be able to detect a case of polio if it does occur.

Table 7. Non-Polio AFP rate and stool adequacy for 2007, 2008 and 2009 per province, Mozambique.

Província	Taxa anual de PFA não-pólio (100.000 crianças <15 anos)			% casos PFA com 2 amostras de fezes aos 14 dias*		
	2007	2008	2009	2007	2008	2009
Niassa	0.6	0,8	3.8	100	25	42
C. Delgado	1.5	0,8	1.0	58	67	62
Nampula	0,1	0,2	2.8	100	100	62
Zambézia	1,6	2.0	2.6	86	74	100
Tete	2,4	3,0	3.1	94	86	100
Manica	1,3	1,2	3.0	87	75	95
Sofala	4,1	2,4	3.9	88	95	90
Inhambane	0,7	0,9	1.4	80	67	70
Gaza	1,5	1,8	2.0	78	82	83
P. Maputo	1,0	1,3	2.2	60	50	82
C. Maputo	1,6	0,5	2.2	50	67	100
Total	1,4	1,3	2.6	82	77	82

While stool adequacy rate was above the minimum rate of 80% at the national level in 2009, there are serious concerns about the stool adequacy at the sub-national level in several provinces, whose indicators are below the minimum 80% required (table 7).

Since its inception in 2006 until 2008 the performance of measles surveillance has been sub optimal in that the country has not attained the minimum 2.0/100,000 population detection rate at the national level, even though it has witnessed an improvement from 0.6/100,000 in 2006 to 1.95 in 2008. In 2009, the country achieved a NMFRI rate of 2.6, but it also experienced measles outbreaks in 4 provinces. Some provinces like Cabo-Delgado and Nampula had a NMFRI rate of

0.4 and 0.5/100.000 inhabitants respectively, while Manica and Tete did not achieve the minimum operational rate.

The proportion of districts that reported at least 1 suspected measles case with blood samples collected was 22% in 2006 and improved only to 70% in 2009 (target > 80% per year).

Table 8. Non-Measles Febrile Rash, percentage of investigated samples and their positivity to measles and rubella for 2009 per province, Mozambique.

	Taxa de detecção (100.000 hab)	Amostras Colhidas (n) %		Casos + de sarampo	Casos + de rubéola
C. Delgado	0.4	8	100.0	0	1
Gaza	2.4	33	100.0	16	4
Inhambane	3.4	51	100.0	8	5
Manica	1.9	27	96.4	5	2
M. Provincia	2.9	34	97.1	9	1
M. Cidade	2.3	32	100.0	17	3
Nampula	0.5	20	100.0	1	1
Niassa	8.8	96	99.0	1	9
Sofala	3.6	64	100.0	1	20
Tete	1.3	22	100.0	0	5
Zambezia	4.2	169	98.8	2	18
<b>Moçambique</b>	<b>2.6</b>	<b>556</b>	<b>99%</b>	<b>60</b>	<b>69</b>

In what concerns MNT, even though the country has eliminated Maternal & Neonatal Tetanus (MNT), surveillance remains a challenge to the country. The country should also straggle to keep the MNT elimination status.

### 2.3.3 Supplemental immunization Activities (SIAs)

Mozambique embarked in accelerated measles mortality reduction strategy in 2005, conducting its first measles catch-up SIAs integrated with OPV and Vitamin A supplementation. The SIAs reached over 8 million children less than 15 years of age, 4.3 million for Polio for under the age of 5 years and 3.3 million for Vitamin A for 6-59 months age group. 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 (table 9).

The impact of the vaccination campaign in the disease incidence was as expected, with a significant reduction in the number of reported cases starting few weeks after the campaign was conducted. Available data through the measles case-based surveillance, which was introduced in the country following the 2005 campaign, demonstrate a remarkable reduction in the number of suspected measles cases from 28,000 in 2004 to 122 in the following year, of which only 6 were positive for measles.

Table 9. Mozambique coverage rate for the 2005 measles catch up SIAs by province, administrative versus survey.

Province	Target group (0-14 years)	N° of immunized children	Coverage rate (%)	SURVEY
NIASSA	470,422	424,116	90	91,1
CABO DELGADO	679,329	627,559	92	95,3
NAMPULA	1,641,474	1,632,847	99	90,1
ZAMBEZIA	1,671,090	1,724,645	103	93,5
TETE	714,937	689,436	96	96,4
MANICA	607,433	600,269	99	94,3
SOFALA	715,200	674,700	94	96,7
INHAMBANE	588,274	537,540	91	97,5
GAZA	548,182	495,888	90	97,3
MAPUTO PROVÍNCIA	403,228	404,852	100	94,8
MAPUTO CIDADE	436,881	377,526	86	98,3
TOTAL	8,476,450	8,189,378	97	94,4

In 2008, the country conducted its follow up campaign in order to reduce the number of accumulated measles susceptible population, targeting children under five with measles, Vitamin A and de-worming. This time, more than 3.4 million children under five were reached with measles vaccination. In spite of the reported high coverage for this 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 1553 were tested in the lab. The total measles confirmed cases were 1570, having been 670 IgM+ and rest through epi-link. The % district suspecting at least 1 case with lab specimen is 90 % while the non measles febrile rash illness rate is 10.9/100,000 probably due to the ongoing measles outbreak. The silent districts in light of the measles outbreak indicate an immediate need for active case search intensification.

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

## 2.4. Situational analysis of the national immunization program

Table 10.1: Situational analysis by accelerated disease control initiatives, based on previous years' data (2008-2010)

System components	Suggested indicators	National*		
		2008	2009	2010
Polio	<i>OPV3 coverage</i>	87	93	93
	<i>Non polio AFP rate per 100,000 children under 15 yrs. of age</i>	1.3	2.6	2.7
	<i>Extent: NID/SNID No. of rounds Coverage range</i>	-	-	-
MNT	<i>TT2+ coverage</i>	58	62	65
	<i>Number of districts reporting &gt; 1 case per 1,000 live births</i>	-	-	-
	<i>Was there an SIA? (Y/N)</i>	Y	N	N
Measles	<i>Measles coverage</i>	96	90	91
	<i>% of Districts with Measles coverage &gt;=90%</i>	44	60	58
	<i>No. of outbreaks reported</i>	1	5	6
	<i>Extent: NID/SNID Age group Coverage</i>	9-59 months 102%	N	N

Source: JFR's (2008-2010) & National Polio progress Reports (2008-2010)

\* It is useful to include the data source for each data set.

Table 10.2: Situational analysis by accelerated disease control initiatives, based on previous years' data (2008-2010)

System components	Suggested indicators	National*		
		2008	2009	2010
Routine Coverage	<i>National DTP3 coverage</i>	87	93	67
	<i>% of districts with &gt; 80% coverage</i>	73	82	30
	<i>National DPT1-DTP3 dropout rate</i>	10	11	23
	<i>Percentage of districts with dropout rate DTP1-DTP3&gt;10%</i>	41	54	30
New vaccines	<i>National HepB3 coverage</i>	87	93	67
Routine Surveillance	<i>% of surveillance reports received at national level from districts compared to number of reports expected</i>	100	100	100
	<i>Quality of surveillance data sufficient? (Y/N)</i>	N	N	N
Cold chain/Logistics	<i>Percentage of districts with adequate number of functional cold chain equipment</i>	44	62	72
Immunization safety and Waste Management	<i>Percentage of districts supplied with adequate (equal or more) number of AD syringes for all routine immunizations</i>	100	100	100
	<i>Percentage of districts supplied with safety boxes</i>	100	100	100
	<i>Percentage of districts with proper sharps waste management systems</i>	30	35	42
Vaccine supply	<i>Was there a stock-out at national level during last year? (Y/N)</i>	N	N	Y
	<i>If yes, specify duration in months</i>	-	-	2
	<i>If yes, specify which antigen(s).</i>	-	-	Penta (DPT-HepB-Hib)
Communication	<i>Availability of a plan? (Y/N)</i>	N	N	N
	<i>Percentage of districts which have developed EPI communication plans</i>	-	-	-
	<i>Percentage of caretakers of children &lt; 1yr understanding the importance of routine immunization.</i>	Not assessed	Not assessed	Not assessed
Financial sustainability	<i>What percentage of total routine vaccine spending was financed using Government funds?(including loans and excluding external public financing)</i>	-	-	26.6

Source: JFR's (2008-2010) & National EPI annual Reports (2008-2010)

\* It is useful to include the data source for each data set.

Table 10.3: Situational analysis by accelerated disease control initiatives, based on previous years' data (2008-2010)

System components	Suggested indicators			National*		
				2008	2009	2010
Management planning	<i>Are a series of district indicators collected regularly at national level?(Y/N)</i>			Y	Y	Y
	<i>Percentage of all districts with microplans.</i>			100	100	100
Research/studies	<i>Number of vaccine related studies conducted/being conducted</i>			0	1	0
NRA	<i>Number of functions conducted</i>			0	0	0
National ICC	<i>Number of meetings held last year</i>			3	2	2
Human Resources availability	<i>Percentage of sanctioned posts of vaccinators filled</i>			-	-	-
	<i>Percentage of health facilities with at least 1 vaccinator</i>			78	90	90
	<i>Percentage of vaccinators time available for routine EPI</i>			62.5	62.5	62.5
	<i>Number of vaccinators / 10.000 population</i>				0.5	0.5
Transport / Mobility	<i>Percentage of districts with a sufficient number of supervisory/EPI field activity vehicles/motorbikes/bicycles in working condition</i>			43	55	70
Waste Management	<i>Availability of a waste management plan</i>			N	N	N
	<i>Vaccine wastage monitoring at national level for all vaccines? (Y/N)</i>			Y	Y	Y
	<i>Vaccine wastage monitoring at sub-national level for all vaccines? (Y/N)</i>			N	N	N
Linking to other Health Interventions	<i>Were immunization services systematically linked with delivery of other interventions (Malaria, Nutrition, Child health etc)?</i>			Y	Y	Y
Programme Efficiency	<i>Timeliness of disbursement of funds to district and service delivery level</i>			N	N	N
<b>School Immunization Activities</b>	Age	Antigens provided	Coverage 2008	Coverage 2009	Coverage 2010	
	School age in Grade 1 & 2	TT1	265,326	375,644	767,923	
		TT2	143,439	264,170	612,521	

JFR's (2008-2010) & National EPI annual Reports (2008-2010)

\* It is useful to include the data source for each data set.

## **2.5 SWOT Analysis of routine EPI in Mozambique**

### **2.5.1 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.

### **2.5.2 Social Mobilization, Advocacy, Communication for EPI**

There are opportunities of social net works 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.

### **2.5.3 Cold Chain, Logistics and Vaccine Management**

There are adequate cold rooms at Central level and in some Provinces (Nampula, Tete, Zambézia and Sofala), and a plan of expansion and rehabilitation of the cold chain system is currently being implemented. 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 developed.

An assessment of the cold chain capacity nationwide indicates enough storage capacity at central level to accommodate traditional, underused and new vaccine (PCV13), for which the country is applying. Meanwhile, inadequate capacity is found in 7 out of 11 provinces, but is also being adequately addressed through allocation of refrigerators. At district and health facility levels practices of vaccine management need improvement in terms of temperature recording, adequacy of stock records.

### **2.5.4 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 analyzed and used for action. The coordination between the EPI and Surveillance programs of the MoH remains weak, as these are under different directorates.

### **2.5.5 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.

### **2.5.6 Surveillance**

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. 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 specimen transport to the national measles lab.

However, the targets for the principal measles surveillance performance indicators have not been met at national and at sub-national level for the past few years. The timeliness and completeness of surveillance and lab data remains low. 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.

### **2.5.7 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.

### **2.5.8 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 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 5.1: Summary of Strengths and weaknesses by Accelerated Disease Control Initiatives, Mozambique, 2010**

Component	Strengths	Weaknesses
<p><b>Polio Eradication</b></p> <p><b>Measles control</b></p> <p><b>Neonatal Tetanus Elimination</b></p>	<ul style="list-style-type: none"> <li>• High coverage rate.</li> <li>• No wild poliovirus detected in the past 12 years</li> <li>• Non-Polio AFP rate good at national level.</li> <li>• Stool adequacy good at national level</li> <li>• SIA strategy in place to boost coverage</li> <li>• Integration with measles, vitamin A supplementation and de-worming</li> <li>• School based TT vaccination Programme in place</li> <li>• TT vaccination for WCBA in routine (fixed and mobile)</li> <li>• MNT eliminated</li> </ul>	<ul style="list-style-type: none"> <li>• Low proportion of districts with OPV3 coverage above 80%</li> <li>• Non Polio AFP rate at sub-national level is sub-optimal in some provinces</li> <li>• Stool adequacy sub-optimal in some provinces</li> <li>• Ongoing Measles outbreak</li> <li>• Low proportion of districts reporting measles coverage above 90%</li> <li>• Missed opportunities for TT immunization</li> </ul>
<p><b>Service delivery</b></p>	<ul style="list-style-type: none"> <li>• Programme well established and running since 1979</li> <li>• There is committed health staff at all levels</li> <li>• Reach difficult to reach areas by routine immunization through RED</li> <li>• Experience in campaigns adopted in the routine immunization</li> </ul>	<ul style="list-style-type: none"> <li>• Less than 50% of the population has access to health services</li> <li>• High national dropout rate up to 20%.</li> <li>• Programme heavily dependent on outreach which is an expensive strategy</li> <li>• Difficulties by peripheral health facilities to go on outreach due to lack of transport, fuel and allowances</li> <li>• Delay in sending data on the number of children immunized, wastage rate and communication activities from the provinces</li> </ul>

**Table 5.2: Summary of Strengths and weaknesses by EPI system components, Mozambique, 2010**

Component	Strengths	Weaknesses
<b>Logistics, equipment maintenance, vaccine supply and quality</b>	<ul style="list-style-type: none"> <li>• Well-ventilated storage capacity at the central level</li> <li>• Continuous power supply with back up from an automatic generator.</li> <li>• Vaccine storage at recommended temperature, availability at all levels (central and provincial) of cold boxes, thermometers, vaccine monitors necessary to keep vaccines</li> <li>• Deployment of specific logistic and maintenance personnel in all provinces</li> <li>• Use of SMT at national &amp; provincial levels</li> </ul>	<ul style="list-style-type: none"> <li>• Low level of vaccine wastage reporting</li> <li>• Vaccines and related injection safety materials (auto-disable syringes and safety boxes) are not supplied bundled</li> <li>• Inadequate stock management at provincial and lower levels</li> <li>• Poor recording of injection safety material at central level</li> <li>• Vaccine Vial Monitor (VVM) discarding point not observed at health facility level</li> <li>• No stock records at provincial level coordinated with central level to monitor vaccine wastage</li> <li>• Existence of non recommended and different brands of equipment for EPI at provincial and lower levels</li> </ul>
<b><u>Injection safety and waste management</u></b>	<ul style="list-style-type: none"> <li>• Auto-disable syringes kept in safety boxes immediately after use, regularly collected, burnt and buried in pits</li> <li>• Injection practices generally safe at vaccine service delivery point</li> <li>• Use of injection safety materials in all vaccination sessions</li> </ul>	<ul style="list-style-type: none"> <li>• In most health units, the pits are not adequately protected and are located in places of easy access to the communities.</li> </ul>

**Table 5.3: Summary of Strengths and weaknesses by EPI system components, Mozambique, 2010**

<b>Component</b>	<b>Strengths</b>	<b>Weaknesses</b>
<b>Advocacy and communication</b>	<ul style="list-style-type: none"> <li>• Intense social mobilization during campaign with the active participation of community leaders</li> <li>• Community involvement strategy developed</li> <li>• Strategy in place to boost community involvement through recruitment and training of community health workers (APE's)</li> <li>• Manuel of health education developed</li> </ul>	<ul style="list-style-type: none"> <li>• Absence of IEC materials on routine EPI at all levels especially at health facilities</li> <li>• Limited use of mass media (TV, radio, newspapers) in routine message dissemination</li> <li>• No staff dedicated to social mobilization of EPI at central and provincial levels</li> </ul>
<b>Surveillance</b>	<ul style="list-style-type: none"> <li>• Availability of disease surveillance manuals in all provinces</li> <li>• Adequate disease reporting and vaccine register tools available at all levels</li> <li>• Surveillance reports available</li> <li>• National laboratory capable of making the serological diagnosis of measles.</li> </ul>	<ul style="list-style-type: none"> <li>• Underreporting of surveillance data</li> <li>• No systematic analysis of coverage, cases and deaths due to vaccine preventable diseases at district levels</li> <li>• Weak integration between EPI, health information system and disease surveillance</li> <li>• Surveillance of adverse events following immunization (AEFI) not yet in place</li> </ul>
<b>Programme Management</b>		
<i>Monitoring &amp; Supervision</i>	<ul style="list-style-type: none"> <li>• Supervision activities carried out at all levels during integrated measles campaign</li> </ul>	<ul style="list-style-type: none"> <li>• Not all planned regular supervisions are carried out at all levels</li> <li>• Absence of supervision reports in many health facilities and district directorates</li> <li>• No follow-up on the recommendations of available reports</li> <li>• Supervisory visits usually brief and in many instances do not take into consideration the main aspects of the EPI components</li> <li>• No periodic evaluation meetings between different levels of EPI programme</li> <li>• No implementation of DQS tool at district level</li> <li>• No adequate supervision from central level to other levels</li> <li>• No supervisory checklists for routine immunization.</li> </ul>
<i>Human Resources</i>	<ul style="list-style-type: none"> <li>• Existence of a national human resources for health policy and plan</li> <li>• Basic training for staff at different levels of EPI</li> <li>• All staff trained on the technical, operational and logistics aspects during campaigns</li> <li>• Dedicated human resources for the EPI at all levels</li> <li>• Training Needs Assessment conducted in last 2 years</li> </ul>	<ul style="list-style-type: none"> <li>• Few follow-up trainings held after the basic training of EPI staff</li> <li>• Inadequate staffing at all levels</li> <li>• High turnover of EPI personnel</li> </ul>

**Table 5.4: Summary of Strengths and weaknesses by EPI system components, Mozambique, 2010**

Component	Strengths	Weaknesses
<b>Programme Management</b>		
<i>Financial Sustainability</i>	<ul style="list-style-type: none"> <li>• Existence of a SWAP, MTEF, for health sector</li> <li>• Most routine vaccines purchased by Mozambican Government</li> <li>• Budget line for vaccines in place</li> <li>• Government financing to EPI increasing</li> </ul>	<ul style="list-style-type: none"> <li>• Insufficient financial resources to implement EPI Plan of Action.</li> <li>• Resources from government alone too small to guarantee financial sustainability</li> </ul>
<i>Linkages to other health interventions</i>	<ul style="list-style-type: none"> <li>• Child health weeks adopted as a strategy for service delivery</li> <li>• Routine activities are integrated (adopted the mother and child health package)</li> <li>• Existence of a MDG 4 &amp; 5 plan</li> <li>• Signing of the compact (IHP+)</li> </ul>	<ul style="list-style-type: none"> <li>• Weak integration at central level (e.g. limited joint planning &amp; monitoring)</li> <li>• Limited sharing of information</li> <li>• Limited integration between surveillance and EPI</li> </ul>
<i>Management planning</i>	<ul style="list-style-type: none"> <li>• Indicators are regularly collected from districts to national level</li> <li>• EPI manual updated</li> <li>• Vaccine Management &amp; CC guidelines updated</li> </ul>	<ul style="list-style-type: none"> <li>• No synchronization between the central and provincial/district planning cycles</li> <li>• Low quality of district operational plans</li> </ul>
<i>NRA</i>		<ul style="list-style-type: none"> <li>• NRA not functional for EPI</li> </ul>



### 3. NATIONAL PRIORITIES, OBJECTIVES AND MILESTONES, MOZAMBIQUE 2012-2016

**Table 12.1: National priorities, objectives and milestones, Mozambique NIP, 2012-2016**

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
<b>Routine Coverage</b>	<p>(1) To achieve and sustain high immunization coverage for all antigens, of at least 90% at National level and at least 85% of districts with at least 80% for all antigens by 2016 (baseline MICS Study 2008: BCG-87.5%; DPT3-74%; OPV-73%; Measles-74%; and 46% of districts with at least 80% coverage for all antigens)</p> <p>(2) Achieve a DPT1/3 drop out of &lt; 10% in at least 80% of the districts by 2015 (baseline in 2010: National DPT1/3 drop out of 20% and 45% of districts with a DPT1/3 drop out of &gt; 10%)</p>	<p>2011: 78% coverage for all antigens at national level and at least 50% of districts with &gt; = 80% coverage for all antigens</p> <p>2012: 80% coverage for all antigens at national level and at least 60% of districts with &gt; = 80% coverage for all antigens</p> <p>2013: 83% coverage for all antigens at national level and at least 70% of districts with &gt; = 80% coverage for all antigens</p> <p>2014: 86% coverage for all antigens at national level and at least 75% of districts with &gt; = 80% coverage for all antigens</p> <p>2015: 88% coverage for all antigens at national level and at least 80% of districts with &gt; = 80% coverage for all antigens</p> <p>2015: 90% coverage for all antigens at national level and at least 85% of districts with &gt; = 80% coverage for all antigens</p>	By 2010 all countries will have routine immunization coverage of 90% nationally with at least 80% coverage in every district.	<b>1</b>
<b>Polio</b>	To achieve and sustain high OPV3 coverage of at least 90% at national level and at least 80% at district level in at least 85% of the districts, by 2016 (baseline MICS Survey 2008: OPV:73%)	<p>2011: 78% coverage for OPV3 at national level and at least 50% of districts with &gt; = 80% OPV3 coverage</p> <p>2012: 80% coverage for OPV3 at national level and at least 60% of districts with &gt; = 80% OPV3 coverage</p> <p>2013: 83% coverage for OPV3 at national level and at least 70% of districts with &gt; = 80% OPV3 coverage</p> <p>2014: 86% coverage for OPV3 at national level and at least 75% of districts with &gt; = 80% OPV3 coverage</p> <p>2015: 88% coverage for OPV3 at national level and at least 80% of districts with &gt; = 80% OPV3 coverage</p> <p>2016: 90% coverage for OPV3 at national level and at least 85% of districts with &gt; = 80% OPV3 coverage</p>	.	<b>1</b>

**Table 12.2: National priorities, objectives and milestones, Mozambique NIP, 2012-2016**

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
<b>Measles</b>	To achieve and sustain high MCV1 coverage of at least 90% at national level and at least 80% at district level in at least 85% of the districts, by 2016 (baseline MICS Survey 2008: Measles: 74%) and achieve at least 95% coverage in all Measles SIAs at national and sub-national (district) levels	<p>2011: 80% coverage for MCV1 at national level and at least 50% of districts with &gt; = 80% MCV1 coverage</p> <p>2012: 76% coverage for MCV1 at national level and at least 60% of districts with &gt; = 80% MCV1 coverage</p> <p>2013: 80% coverage for MCV1 at national level and at least 70% of districts with &gt; = 80% MCV1 coverage</p> <p>2014: 84% coverage for MCV1 at national level and at least 75% of districts with &gt; = 80% MCV1 coverage achieve at least 95% coverage for SIAs at national and sub-national (district) levels</p> <p>2015: 88% coverage for MCV1 at national level and at least 80% of districts with &gt; = 80% MCV1 coverage</p> <p>2016: 90% coverage for MCV1 at national level and at least 85% of districts with &gt; = 80% MCV1 coverage</p>	<p>Greater than 90% MCV1 national level coverage with at least 80% coverage in every district.</p> <p>Greater than 95% measles SIAs coverage in all districts</p>	<b>1</b>
<b>MNT</b>	Maintain the MNT elimination status in all districts by 2012 and beyond	2012 and beyond: Maintain the MNT elimination status		
<b>Pentavalente (DPT/Hep B + Hib)</b>	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 85% of the districts, by 2016 (baseline MICS Survey 2008: DPT-HepB-Hib3:74%)	<p>2011: 78% coverage for Pentavalent (DPT-Hep-Hib) at national level and at least 50% of districts with &gt; = 80% (DPT-Hep-Hib) coverage</p> <p>2012: 80% coverage for Pentavalent (DPT-Hep-Hib) at national level and at least 60% of districts with &gt; = 80% (DPT-Hep-Hib) coverage</p> <p>2013: 83% coverage for Pentavalent (DPT-Hep-Hib) at national level and at least 70% of districts with &gt; = 80% (DPT-Hep-Hib) coverage</p> <p>2014: 86% coverage for Pentavalent (DPT-Hep-Hib) at national level and at least 75% of districts with &gt; = 80% (DPT-Hep-Hib) coverage</p> <p>2015: 88% coverage for Pentavalent (DPT-Hep-Hib) at national level and at least 80% of districts with &gt; = 80% (DPT-Hep-Hib) coverage</p> <p>2015: 90% coverage for Pentavalent (DPT-HepB-Hib) at national level and at least 85% of districts with &gt; = 80% (DPT-HepB-Hib) coverage</p>		<b>1</b>

**Table 12.3: National priorities, objectives and milestones, Mozambique NIP, 2012-2016**

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
<b>Pneumococcal Vaccine</b>	(1) Introduce PVC by 2012 countrywide and achieve and sustain high immunization coverage for PCV3 of at least 90% at National level and at least 80% in at least 85% of the districts by 2016 (baseline: 0)	2012: 80% coverage for PCV3 at national level and at least 60% of districts with > = 80% PCV3 coverage  2013: 83% coverage for PCV3 at national level and at least 70% of districts with > = 80% PCV3 coverage  2014: 86% coverage for PCV3 at national level and at least 75% of districts with > = 80% PCV3 coverage  2015: 88% coverage for PCV3 at national level and at least 80% of districts with > = 80% PCV3 coverage  2016: 90% coverage for PCV3 at national level and at least 85% of districts with > = 80% PCV3 coverage		<b>5</b>
<b>Rotavirus Vaccine</b>	(1) Introduce Rotavirus vaccine countrywide 2014 and achieve and sustain high immunization coverage for Rotavirus 2 of at least 90% at National level and at least 80% in at least 85% of the districts by 2016 (baseline: 0)	2014: 86% coverage for Rota2 at national level and at least 75% of districts with > = 80% Rota2 coverage  2015 & beyond: 88% coverage for Rota2 at national level and at least 80% of districts with > = 80% Rota2 coverage  2016 & beyond: 90% coverage for Rota2 at national level and at least 85% of districts with > = 80% Rota2 coverage		<b>5</b>

**Table 12.4: National priorities, objectives and milestones, Mozambique NIP, 2012-2016**

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
<b>Immunization Safety</b>	Maintain the use of AD syringes and safety boxes in 100% of the vaccination posts in either fixed or mobile teams	2012 - 2016: 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.	
<b>Waste Management</b>	Achieve 100% of health facilities with fixed vaccination post with adequate waste management system (adequately built, protected, located and used) for EPI waste by 2015 baseline: 20% in 2010	2011: at least 40% of HF with fixed vaccination post with adequate waste management system  2012: at least 60% of HF with fixed vaccination post with adequate waste management system  2013: at least 80% of HF with fixed vaccination post with adequate waste management system  2014: at least 90% of HF with fixed vaccination post with adequate waste management system  2015 & beyond: 100% of HF with fixed vaccination post with adequate waste management system		

**Table 12.5: National priorities, objectives and milestones, Mozambique NIP, 2012-2016**

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
<p style="text-align: center;"><b>Surveillance</b></p>	<p><b>Sustain</b> 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 I <b>Achieve</b> at least 100% of provinces with Non-Polio AFP rate of at least 2/100,000 &lt; 15 Years and at least 80% of stool adequacy in all provinces by 2015 I <b>Achieve</b> at least 90% of reporting districts by 2015 I <b>Baseline in 2010:</b> 2.3 Non-Polio AFP rate and 83% stool adequacy at national level; 82% of provinces achieved the Non-Polio AFP target; 72% of provinces with adequate stool; 70% of reporting districts</p>	<p>2011: Non-Polio AFP rate of at least 2/100,000 &lt; 15 Years and achieve an adequacy stool rate of at least 85% at national level; at least 85% of provinces with Non-Polio AFP rate of at least 2/100,000 &lt; 15 Years; at least 80% of provinces with at least 80% adequacy stool; at least 75% of reporting districts</p> <p>2012: Non-Polio AFP rate of at least 2/100,000 &lt; 15 Years and achieve an adequacy stool rate of at least 85% at national level; at least 90% of provinces with Non-Polio AFP rate of at least 2/100,000 &lt; 15 Years; at least 80% of provinces with at least 80% adequacy stool; at least 80% of reporting districts</p> <p>2013: Non-Polio AFP rate of at least 2/100,000 &lt; 15 Years and achieve an adequacy stool rate of at least 85% at national level; at least 95% of provinces with Non-Polio AFP rate of at least 2/100,000 &lt; 15 Years; at least 80% of provinces with at least 80% adequacy stool; at least 85% of reporting districts</p> <p>2014: Non-Polio AFP rate of at least 2/100,000 &lt; 15 Years and achieve an adequacy stool rate of at least 85% at national level; at least 100% of provinces with Non-Polio AFP rate of at least 2/100,000 &lt; 15 Years; at least 80% of provinces with at least 80% adequacy stool; at least 90% of reporting districts</p> <p>2015: Non-Polio AFP rate of at least 2/100,000 &lt; 15 Years and achieve an adequacy stool rate of at least 85% at national level; at least 100% of provinces with Non-Polio AFP rate of at least 2/100,000 &lt; 15 Years; at least 80% of provinces with at least 80% adequacy stool; at least 90% of reporting districts and at least 80% of reporting districts</p>		

**Table 12.6: National priorities, objectives and milestones, Mozambique NIP, 2012-2016**

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
<p align="center"><b>Surveillance</b></p>	<p>Sustain high quality Measles surveillance performance indicators of at least 2 NMFI cases per 100,000 population at national and provincial level; achieve at least 80% of districts reporting at least 1 case of suspected measles with blood sample collected and investigated in the lab</p> <p>I  <b>Baseline in 2010:</b> 9.0 NMFI rate at national and provincial levels; 75% of districts reporting at least 1 case of suspected measles with blood sample collected for lab analysis</p>	<p>2011: at least 2 NMFI /100,000 population at national and provincial level; achieve at least 80% of districts reporting at least 1 case of suspected measles with blood sample collected and investigated in the lab</p> <p>2012: at least 2 NMFI /100,000 population at national and provincial level; achieve at least 85% of districts reporting at least 1 case of suspected measles with blood sample collected and investigated in the lab</p> <p>2013: at least 2 NMFI /100,000 population at national and provincial level; achieve at least 88% of districts reporting at least 1 case of suspected measles with blood sample collected and investigated in the lab</p> <p>2014: at least 2 NMFI /100,000 population at national and provincial level; achieve at least 90% of districts reporting at least 1 case of suspected measles with blood sample collected and investigated in the lab</p> <p>2015: at least 2 NMFI /100,000 population at national and provincial level; achieve at least 90% of districts reporting at least 1 case of suspected measles with blood sample collected and investigated in the lab</p>		
	<p>Institutionalize the routine implementation of the surveillance of adverse events following immunization (AEFI) countrywide by 2015</p>	<p>2012: at least 25% of districts will report AEFI</p> <p>2013: at least 50% of districts will report AEFI</p> <p>2014: at least 75% of districts will report AEFI</p> <p>2015 and beyond: All districts will report AEFI</p>		
	<p>Reactivate all existing Hib surveillance sites and make them fully functional and performant by 2012</p>	<p>2012 and beyond: each of the three existing surveillance sites will report at least 200 cases suspected of meningitis with LCR with lab results</p>		

**Table 12.7: National priorities, objectives and milestones, Mozambique NIP, 2012-2016**

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
<b>Vaccine Supply</b>	Establish an effective vaccine management system in all provinces by 2012 and in all districts by 2016	2012: all provinces and at least 25% of the district with using he available vaccine management tools  2013: all provinces and at least 50% of the district with using he available vaccine management tools  2014: all provinces and at least 75% of the district with using he available vaccine management tools  2015 and beyond: all provinces and districts using he available vaccine management tools	By the end of 2009, all countries will have a vaccine monitoring system in place at all levels	
<b>Cold Chain / Logistics</b>	Improve cold chain capacity at national level and in all provinces to meet the needs for new vaccine introduction by 2014	2011: Increase cold chain capacity at National and Provincial levels by 2011 to meet PVC storage needs in 2012  2012: Increase cold chain capacity and replace depleted and non recommended brand refrigerators in at least 25% of districts by 2012  2013: Increase cold chain capacity at National and Provincial levels by 2013 to meet the Rotavirus vaccine storage needs in 2014  2014: Increase cold chain capacity and replace depleted and non recommended brands of refrigerators in at least 40% of districts by 2012  2015: Increase cold chain capacity and replace depleted and non recommended brand refrigerators in at least 60% of districts by 2015  2016: Increase cold chain capacity and replace depleted and non recommended brand refrigerators in at least 80% of districts by 2016		

**Table 12.8: National priorities, objectives and milestones, Mozambique NIP, 2012-2016**

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
<b>Advocacy and Communications</b>	At least 80% of caretakers of children understand the importance of routine immunization and the vaccination schedule by 2015	2012: EPI messages for routine strengthening integrated in the global communication plan for health promotion.  2013 and beyond: All districts disseminating key EPI messages contained in the global communication plan to incentive demand for EPI services		
<b>Management and Planning</b>	Build capacity for adequate program management and implementation in all districts and ensure reliable supportive supervision by 2015	2012: at least 25% of districts with DHMT created and capacitated 2013: at least 50% of districts with DHMT created and capacitated 2014: at least 75% of districts with DHMT created and capacitated 2015: all dl districts with DHMT created and capacitated		
<b>Program Efficiency</b>	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	2012 and beyond: all districts, provinces and the national level will report a wastage of < 10 % for all liquid vaccines in the NIP		
<b>Financial Sustainability</b>	Increase the national funding for EPI by at least 10% per year baseline in 2010: 26.6%	An annual increase of at least 10% in government funds allocated to NIP		

**Table 12.9: National priorities, objectives and milestones, Mozambique NIP, 2012-2016**

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
<p><b>Human Resources Management</b></p>	<p>Strengthen the EPI Program through deployment of adequately trained human resources to respond to the needs of the Program by 2015</p>	<p>2012: 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</p> <p>2013: Update both pre and in service training curriculum and training materials</p>		
		<p>2014 and beyond: Training and deployment of human resources at various levels of the system to fill the vacant positions in the new comprehensive EPI structure at different levels</p>		
<p><b>Training and Supervision</b></p>	<p>Build capacity for adequate program management and implementation in all districts and ensure reliable supportive supervision by 2015</p>	<p>By 2012: at least 25% of districts will have received training on MLM, RED, DQS and effective vaccine management and provided with adequate tools and regular follow up supervisory visits</p> <p>By 2013: at least 50% of districts will have received training on MLM, RED, DQS and effective vaccine management and provided with adequate tools and regular follow up supervisory visits</p> <p>By 2014: at least 75% of districts will have received training on MLM, RED, DQS and effective vaccine management and provided with adequate tools and regular follow up supervisory visits</p> <p>By 2015 and beyond: all districts will have received training on MLM, RED, DQS and effective vaccine management and provided with adequate tools and regular follow up supervisory visits</p> <p>2012: at least 25% of districts will receive training on MLM, RED, DQS and effective vaccine management and provided with adequate tools and regular follow up supervisory visits</p>		

**Table 12.10: National priorities, objectives and milestones, Mozambique NIP, 2012-2016**

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
<b>Research / Studies</b>	Evaluate and strengthen the National Immunization Program by 2015	2012: Conduct EPI program review; conduct a study on barriers for utilization of immunization services 2013: Conduct VMA		
<b>Linking to Other Health Interventions</b>	Integrate the MDG4&5 plan in the district plans for its operationalization by all district 2015	2012: at least 25% of districts will integrate the MDG4&5 plan into their plans and operationalize it 2013: at least 50% of districts will integrate the MDG4&5 plan into their plans and operationalize it 2014: at least 75% of districts will integrate the MDG4&5 plan into their plans and operationalize it 2015 and beyond: at least 90% of districts will integrate the MDG4&5 plan into their plans and operationalize it		

#### 4. STRATEGIES, ACTIVITIES AND TIMELINE

**Table 13.1: Service delivery**

National Objective	Strategy	Key Activities
<p>(1) To achieve and sustain high immunization coverage for all antigens, of at least 90% at National level and at least 80% in all districts by 2015 (baseline MICS Study 2008: BCG-87.5%; DPT3-74%; OPV-73%; Measles-74%; and 46% of districts with at least 80% coverage for all antigens)</p>	<p>Ensure the un-reached are reached in every district at least four times per year</p>	<p>Conduct micro-planning for RED implementation at the district or local level</p>
		<p>Timely desimburse funds for implementation of planned activities</p>
		<p>Implement the minimum integrated MCH package in health facilities with fixed vaccination posts as wells as in outreach / mobile sessions</p>
		<p>Conduct Child Health Days 2 times per year</p>
		<p>Engage non governmental organizations and private sector in the delivery of services</p>
		<p>Implement African Vaccination Weeks</p>
		<p>Conduct integrated supportive supervision</p>
<p>Achieve a DPT1/3 drop out of &lt; 10% in at least 80% of the districts by 2015 (baseline in 2010: National DPT1/3 drop out of 20% and 45% of districts with a DPT1/3 drop out of &gt; 10%)</p>	<p>Establish a defaulter tracing mechanism at health facility</p>	<p>Involve health workers and community health workers in the identification of missing children at the health facility and community levels, and immunize them</p>
	<p>Minimize missed opportunities</p>	<p>Strictly comply with outreach plans and schedules.</p>
		<p>Integrate defaulter tracing also during child health weeks activities</p>

**Table 13.2: Service delivery**

National Objective	Strategy	Key Activities
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 2015 (baseline MICS Survey 2008: OPV:73%)	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
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 2015 (baseline MICS Survey 2008: Measles: 74%) and 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 in all districts by 2012 and beyond	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 2015 (baseline MICS Survey 2008: DPT-HepB-Hib3:74%)	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 13.3: Service delivery**

National Objective	Strategy	Key Activities
(1) Introduce PVC by 2012 countrywide and achieve and sustain high immunization coverage for PCV3 of at least 90% at National level and at least 80% in at least 80% of the districts by 2015 (baseline: 0)	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
(1) Introduce Rotavirus vaccine countrywide by 2014 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 2015 (baseline: 0)	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		

**Table 13.4: 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 13.5: Surveillance**

National Objective	Strategy	Key Activities
Sustain high quality AFP/Measles and MNT surveillance performance to meet standard indicators at national and sub-national levels	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 from 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
	Perform regular quality control assessment of national measles lab	
Train/ Refresh lab technicians on recent technology and knowledge		

**Table 13.6: Surveillance**

National Objective	Strategy	Key Activities
Implement Hib, Penumococcus 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 13.7: 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
Establish an adequate waste management system (adequately built, protected, located and used) for EPI and other health waste in all districts by 2015 baseline: 20% in 2010	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 by 2012 and in all 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 by 2014	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 13.8: Program Management**

National Objective	Strategy	Key Activities
<p><b>Human Resources Management</b> Build capacity for adequate program management and implementation in all districts and ensure reliable supportive supervision by 2015</p>	Improve management capacity of district teams	Create District Health Management Teams (DHMT) and build their capacity of 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
	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 13.9: Program Management**

National Objective	Strategy	Key Activities
<b>Research / Studies</b> Evaluate and strengthen the National Immunization Program by 2015	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
<b>NRA regulatory oversight</b> Strengthen NRA role with regards to vaccine regulations issues (licensing, market realizing and pos market surveillance)	Close collaboration between NRA and EPI unit	Training of NRA staff on vaccine regulatory issues
<b>Financial Sustainability</b> Increase the national funding for EPI by at least 10% per year baseline in 2010: 26.6%	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
<b>Program Efficiency</b> 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
<b>Linking to Other Health Interventions</b> Integrate the MGD4&5 plan in the district plans for its operationalization by all district 2015	Better coordination between MDG4&5 related program a 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 14.1: GIVS Framework Checklist**

GIVS strategies	Key activities	Activity included in MYP			
		Y	N	Not applicable	New activity needed
<b>Strategic Area One: Protecting more people in a changing world</b>					
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			

**Table 14.2: GIVS Framework Checklist**

GIVS strategies	Key activities	Activity included in MYP			
		Y	N	Not applicable	New activity needed
<b>Strategic Area One: Protecting more people in a changing world</b>					
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 14.3: GIVS Framework Checklist**

GIVS strategies	Key activities	Activity included in MYP?			
		Y	N	Not applicable	New activity needed
<b>Strategic Area Two: Introducing new vaccines and technologies</b>					
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 14.4: GIVS Framework Checklist**

GIVS strategies	Key activities	Activity included in MYP?			
		Y	N	Not applicable	New activity needed
<b>Strategic Area Three: Linking immunization to other interventions</b>					
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 14.5: GIVS Framework Checklist**

GIVS Strategies	Key Activities	Activity included in MYP?			
		Y	N	Not applicable	New activity needed
<b>Strategic Area Four: Immunization in the health systems context</b>					
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			

**Table 14.6: GIVS Framework Checklist**

GIVS Strategies	Key Activities	Activity included in MYP?			
		Y	N	Not applicable	New activity needed
<b>Strategic Area Four: Immunization in the health systems context</b>					
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 14.7: GIVS Framework Checklist**

GIVS Strategies	Key activities	Activity included in MYP?			
		Y	N	Not applicable	New activity needed
<b>Strategic Area Five: Immunizing in a context of global interdependence</b>					
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			

**Table 15.1: Activity timeline**

<b>Key activities</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Service delivery</b>						
Conduct micro-planning for RED implementation at the district or local level						
Timely desimburse 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						
Involve health workers and community health workers in the identification of missing children at the health facility and community levels, and immunize them						
Strictly comply with outreach plans and schedules.						
Integrate defaulter tracing also during child health weeks activities						
Conduct regular risk assessment for Polio importation						
Conduct national or sub-national NID's for OPV as appropriate						
Integrate OPV in all activities mentioned above for sustaining high immunization coverage						
Conduct regular risk assessment for measles outbreak						
Conduct sub-national NID's for measles as appropriate						
Conduct measles follow up SIA's at national level every 3-4 years						
Integrate measles in all activities mentioned above for sustaining high immunization coverage						
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 SIA's if necessary						

**Table 15.2: Activity timeline**

<b>Key activities</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Service delivery</b>						
Regularly evaluate DPT-HepB-Hib coverage by district and take appropriate actions						
Integrate DPT-HepB-Hib in all activities mentioned above for sustaining high immunization coverage						
Assess burden of pneumococcal disease						
Advocacy and building of consensus for PCV introduction						
Prepare and submit PCV introduction proposal to GAVI						
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						
Launching of PCV						
Immunize children with PCV						
Integrate PCV in all activities mentioned above for sustaining high immunization coverage						
Conduct a post introduction evaluation						

**Table 15.3: Activity timeline**

<b>Key activities</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Service delivery</b>						
Assess burden of Rotavirus disease						
Advocacy and building of consensus for Rotavirus introduction						
Prepare and submit Rotavirus vaccine introduction proposal to GAVI						
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 workers with focus on Rotavirus						
Disseminate IEC materials						
Launching of Rotavirus vaccine						
Immunize children with Rotavirus						
Integrate Rotavirus vaccine in all activities mentioned above for sustaining high immunization coverage						
Conduct a post introduction evaluation						

**Table 15.4: Activity timeline**

<b>Key activities</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Advocacy and Communications</b>						
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						
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						
Meetings with religious leaders from vaccination objectors						
Conduct public media campaign						
Conduct focal group discussions						

**Table 15.6: Activity timeline**

<b>Key activities</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Surveillance</b>						
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 from 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 feed back 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)						
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						

**Table 15.7: Activity timeline**

<b>Key activities</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Surveillance</b>						
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, Pneumococcus and Rota surveillance, including data management						
Conduct Rota disease burden assessment						
Provide essential materials, operational funds and technical support to Hib, Pneumococcus and Rota Lab						
Perform regular quality control assessment of national Hib, Pneumococcus and Rota lab						
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 15.8: Activity timeline**

<b>Key activities</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Vaccine supply, quality and logistics</b>						
Procure vaccines and related injection safety materials from internationally recognized manufactures						
Develop a plan of supply and distribution of injection safety materials						
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						
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 / Refresh focal persons on DVDMT tool at district level						
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						
Procure transport for EPI and Surveillance activities						

**Table 15.9: Activity timeline**

<b>Key activities</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Program Management</b>						
Create District Health Management Teams (DHMT) and build their capacity o planning and management of resources, including financial resources						
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 district / health facility performance and the timeliness and completeness of reports						
Regularly evaluate coverage per antigen and take appropriate corrective actions						
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						
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 integrated supportive supervision to districts						
Provide timely feed back						
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						

**Table 15.10: Activity timeline**

<b>Key activities</b>		<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Program Management</b>						
Conduct periodic reviews of EPI & surveillance programs						
Conduct periodic effective vaccine management assessments						
Conduct research study on barriers for utilization of EPI services						
Training / Refresh of NRA staff on vaccine regulatory oversight matters						
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						
Sensitize health workers at all levels to complete the section on the form AO3 on total vaccine doses spent						
Compile the information on form AO3 on a monthly basis and provide regular feedback to the health facilities						
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						

## **5. COSTING AND FINANCING OF MULTI-YEAR PLAN 2012-2016**

### **5.1 Costing and Financing Methodology**

Having set National Priorities for 2012, the costing of future activities for this cMYP was completed using the standard Costing Tool Version 2.5 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.

Standard programme inputs such as vaccines, injection materials and cold chain equipment were priced using the Government of Mozambique paid price for these items. UNICEF price schedules were also used for those items secured through UNICEF. FDC and Village Reach, active EPI partners, also assisted with information on updated prices of cold chain and vehicles and the investment costs they made for the program recently. Operational costs for routine and supplementary activities were estimated based on past experiences. Campaign costs of OPV in 2013 and measles in 2015 were assessed based on information provided on the vaccines and operational costs of the most recent campaigns. Future costing and financing have been calculated for the period 2012-2016.

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 in 2013 (OPV) and 2015 (Measles)
- The introduction of the Pneumococcal vaccine (PCV) in 2012 and Rotavirus vaccine in 2014

## 5.2 Baseline Cost profile (routine only)

The cost profile of the base year (2010) is shown in figure 4 bellow. The three main cost drivers of the programme are underused vaccines (48%), personnel (19%), traditional vaccines and other routine recurrent costs (10%) each. Others have cost shares that vary between 1% and 4%.

Figure 4. Baseline cost (routine only)

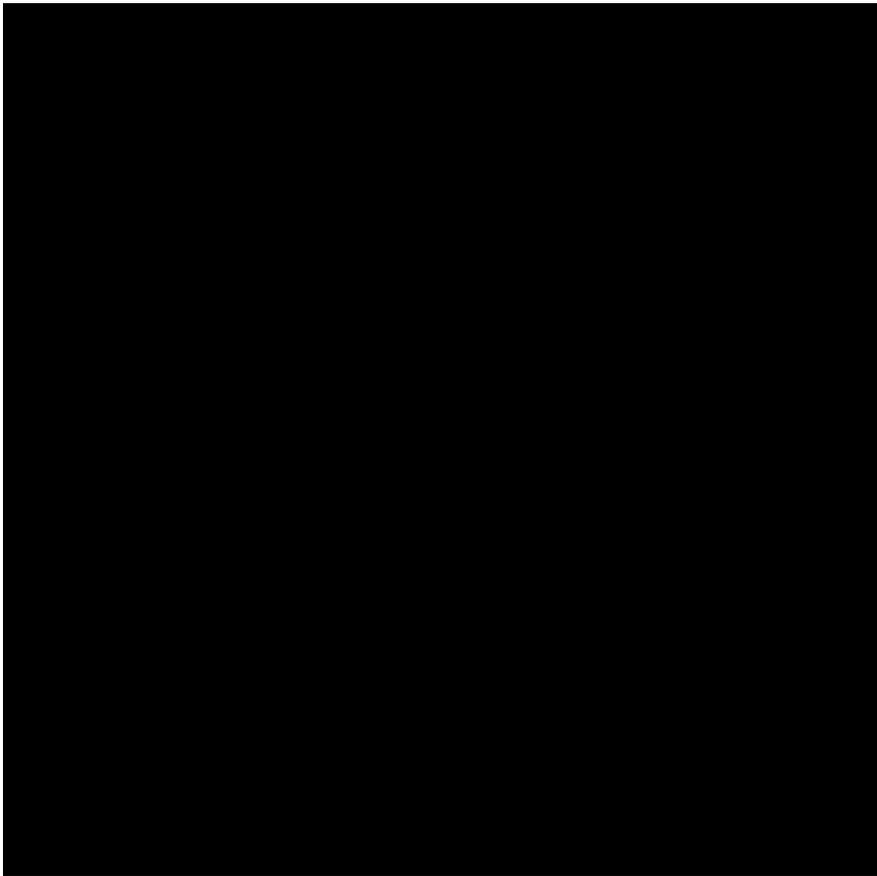


Table 16: Programme costs and future resource requirements\*

Cost Category	Costs		Future Cost Projections				Total 2012-2016
	2010	2012	2013	2014	2015	2016	
	US\$	US\$	US\$	US\$	US\$	US\$	US\$
<b>Routine Recurrent Costs</b>							
Vaccines (routine vaccines only)	\$8,511,500	\$15,575,617	\$15,385,924	\$34,547,621	\$34,191,357	\$36,415,695	\$136,116,214
Traditional	\$1,500,000	\$1,124,904	\$1,209,942	\$1,299,759	\$1,388,283	\$1,468,093	\$6,490,981
Underused	\$7,011,500	\$4,561,072	\$4,928,855	\$5,319,185	\$5,660,092	\$6,030,600	\$26,499,804
New	\$0	\$9,889,642	\$9,247,128	\$27,928,676	\$27,142,982	\$28,917,002	\$103,125,430
Injection supplies	\$426,000	\$623,245	\$667,694	\$717,201	\$763,455	\$808,880	\$3,580,475
Personnel	\$2,701,615	\$2,994,216	\$3,294,318	\$3,602,051	\$3,881,919	\$4,129,144	\$17,901,648
Salaries of full-time NIP health workers (immunization specific)	\$1,993,780	\$2,211,311	\$2,433,891	\$2,664,490	\$2,903,340	\$3,112,823	\$13,325,855
Per-diems for outreach vaccinators/mobile teams	\$511,817	\$563,180	\$616,392	\$670,198	\$705,869	\$738,157	\$3,293,797
Per-diems for supervision and monitoring	\$196,018	\$219,725	\$244,035	\$267,362	\$272,710	\$278,164	\$1,281,996
Transportation	\$549,437	\$597,173	\$652,772	\$703,148	\$612,827	\$660,601	\$3,226,521
Fix site strategy (incl. vaccine distribution)	\$305,243	\$331,763	\$362,651	\$390,638	\$340,459	\$367,001	\$1,792,512
Outreach strategy	\$183,146	\$199,058	\$217,591	\$234,383	\$204,276	\$220,200	\$1,075,507
Mobile strategy	\$61,049	\$66,353	\$72,530	\$78,128	\$68,092	\$73,400	\$358,502
Maintenance and overhead	\$420,040	\$512,912	\$632,011	\$790,913	\$911,278	\$998,020	\$3,845,135
Cold chain maintenance and overheads	\$120,455	\$144,427	\$168,399	\$228,516	\$246,329	\$272,766	\$1,060,436
Maintenance of other capital equipment	\$138,650	\$204,332	\$296,176	\$391,612	\$490,748	\$547,569	\$1,930,436
Building overheads (electricity, water...)	\$160,935	\$164,154	\$167,437	\$170,786	\$174,201	\$177,685	\$854,262
Short-term training	\$210,000	\$435,145	\$456,309	\$478,344	\$501,277	\$525,129	\$2,396,204
IEC/social mobilization	\$190,000	\$326,359	\$342,232	\$358,758	\$375,958	\$393,847	\$1,797,153
Disease surveillance	\$370,000	\$870,291	\$912,618	\$956,689	\$1,002,554	\$1,050,257	\$4,792,409
Programme management	\$235,000	\$543,931	\$570,386	\$597,930	\$626,596	\$656,411	\$2,995,255
Other routine recurrent costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Subtotal</b>	<b>\$13,613,591</b>	<b>\$22,478,889</b>	<b>\$22,914,266</b>	<b>\$42,752,657</b>	<b>\$42,867,220</b>	<b>\$45,637,984</b>	<b>\$176,651,015</b>
<b>Routine Capital Costs</b>							<b>\$0</b>
Vehicles	\$250,000	\$271,320	\$333,968	\$386,280	\$166,695	\$214,192	\$1,372,454
Cold chain equipment	\$400,000	\$491,380	\$1,021,367	\$357,250	\$418,986	\$466,500	\$2,755,483
Other capital equipment	\$211,400	\$266,526	\$266,526	\$266,526	\$266,526	\$266,526	\$1,332,630
<b>Subtotal</b>	<b>\$861,400</b>	<b>\$1,029,226</b>	<b>\$1,621,861</b>	<b>\$1,010,056</b>	<b>\$852,207</b>	<b>\$947,218</b>	<b>\$5,460,567</b>
<b>Campaign Costs</b>							<b>\$0</b>
Ex: Polio	\$0	\$0	\$2,083,303	\$0	\$0	\$0	\$2,083,303
Vaccines and Injection Supplies	\$0	\$0	\$697,210	\$0	\$0	\$0	\$697,210
Operational costs	\$0	\$0	\$1,386,093	\$0	\$0	\$0	\$1,386,093
Ex: Measles	\$0	\$0	\$0	\$0	\$4,219,377	\$0	\$4,219,377
Vaccines and Injection Supplies	\$0	\$0	\$0	\$0	\$1,831,497	\$0	\$1,831,497
Operational costs	\$0	\$0	\$0	\$0	\$2,387,880	\$0	\$2,387,880
Specify Campaign in Table 0.0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Vaccines and Injection Supplies	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operational costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Specify Campaign in Table 0.0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Vaccines and Injection Supplies	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operational costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Specify Campaign in Table 0.0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Vaccines and Injection Supplies	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operational costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Specify Campaign in Table 0.0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Vaccines and Injection Supplies	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operational costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Specify Campaign in Table 0.0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Vaccines and Injection Supplies	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operational costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Specify Campaign in Table 0.0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Vaccines and Injection Supplies	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operational costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Specify Campaign in Table 0.0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Vaccines and Injection Supplies	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operational costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Subtotal</b>	<b>\$0</b>	<b>\$0</b>	<b>\$2,083,303</b>	<b>\$0</b>	<b>\$4,219,377</b>	<b>\$0</b>	<b>\$6,302,680</b>
<b>Shared Health Systems Costs</b>							<b>\$0</b>
Shared personnel costs	\$843,076	\$904,701	\$968,454	\$1,031,484	\$1,052,114	\$1,073,156	\$5,029,910
Shared transportation costs	\$74,934	\$76,433	\$77,961	\$79,521	\$81,111	\$82,733	\$397,759
Construction of new buildings	\$21,458	\$21,887	\$22,325	\$22,771	\$23,227	\$23,691	\$113,902
<b>Subtotal</b>	<b>\$939,468</b>	<b>\$1,003,021</b>	<b>\$1,068,740</b>	<b>\$1,133,776</b>	<b>\$1,156,452</b>	<b>\$1,179,581</b>	<b>\$5,541,571</b>
<b>GRAND TOTAL</b>	<b>\$15,414,460</b>	<b>\$24,511,136</b>	<b>\$27,688,171</b>	<b>\$44,896,489</b>	<b>\$49,095,255</b>	<b>\$47,764,782</b>	<b>\$193,955,833</b>
Routine Immunization	\$15,414,460	\$24,511,136	\$25,604,868	\$44,896,489	\$44,875,878	\$47,764,782	\$187,653,153
Supplemental Immunization Activities	\$0	\$0	\$2,083,303	\$0	\$4,219,377	\$0	\$6,302,680

\* The country intends to introduce Rotavirus vaccine in 2014. Therefore, it would be reasonable that most of cold chain investment be made before 2014 as a preparation for new vaccine introduction. According to the cold chain capacity analysis, the shortage of storage capacity is found in vaccine deposits at National and Provincial levels. Therefore, investment in cold chain for Rotavirus vaccine was anticipated to 2012 and 2013, that is, before the year of the introduction of Rotavirus vaccine in 2014. The investment will continue in small amounts in the following years just to respond to extension of the fixed vaccination posts and replacement of old and depleted cold chain.

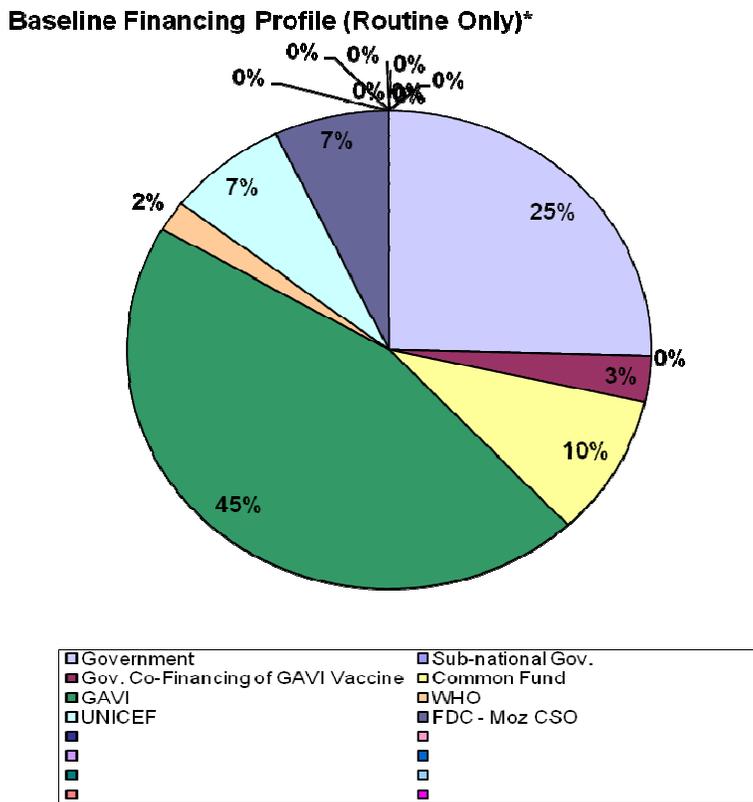
### **5.3 Programme Cost Resource requirement for 2012-2016**

The Government of Mozambique will strive to achieve the Global Immunization Vision and Strategy (GIVS) targets. Therefore, 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) 2012-2016.

The total resource requirements for the EPI in Mozambique, excluding shared costs are estimated at \$188.4 million. This gives an average of \$37.7 million per annum. Out of total, routine immunization accounts for \$182.1 million, while the remaining \$6.3 million is for SIAs (\$2.1 million for Polio in 2013 and \$4.2 million for Measles in 2015). The last Polio Supplementary Immunization Activities (SIAs) in Mozambique took place in 2005. One reason is that Mozambique has been declared polio-free and so all the efforts in polio eradication are directed towards active surveillance. However, with the risk of importation in areas of low OPV3 vaccination coverage along with contacts with people from infected areas (with active Polio transmission), there might be a need to conduct a Polio campaign at national or sub-national level as appropriate, at the same time that surveillance is strengthened.

In the context of GIVS, the EPI has proposed the introduction of Pneumococcal vaccine (PCV13) into immunization system in 2012. The introduction of Rotavirus vaccine in Mozambique is planned for 2014.

Figure 5: Baseline financing profile (routine only)



#### 5.4 Baseline Financing

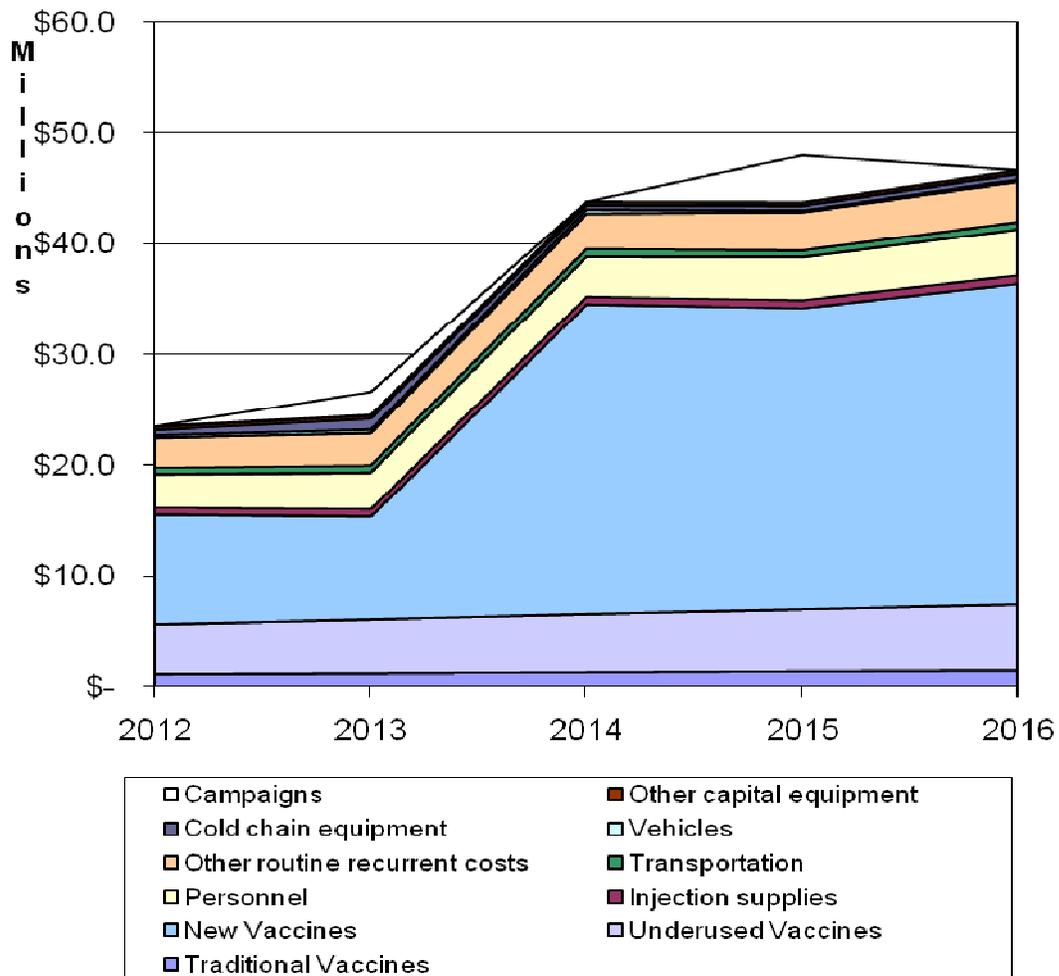
The baseline financing of the EPI programme in Mozambique indicates that GAVI bears 45% of the programme cost. This is followed by Government at 28% (25% for general routine recurrent costs and 3% for Pentavalent DPT-HepB-Hib vaccine Co-financing), then the Common Fund (common basket fund) at 10%, UNICEF and FDC at 7% and finally WHO 2%. The combined donor contribution is 72% of the programme cost. The details are shown in Figure 5.2 above. The two main immunization strategies implemented were routine and periodic intensification of routine immunization (PIRI) activities conducted in integration with other essential mother and child health interventions under the National child Health Weeks, twice a year, (Table 10), but the bulk of the costs for the planned period were for routine. Capital investment represented 6% of the total immunization cost, excluded shared costs.

### 5.5 Projected financing from all sources

The composition of the future resource requirement is shown in Figure 5.3. The resource requirement has increased from around \$23.5 million in 2012 to \$46.6 million in 2016 (figure 6 and table 11 bellow). The major driving costs are new vaccines, underused vaccines, personnel and other recurrent costs. Traditional vaccines, injection safety materials, cold chain, transport and vehicles have a small share requirement.

Figure 6. Projection of future resource requirement

#### Projection of Future Resource Requirements\*\*



### **5.5.1 Future Financing**

Out of the total resource requirement of \$188.4 million, \$51.3 million, representing 27% of required resources, are secured over the life of the plan of the current cMYP (table 9). The average funding gap with secured funding as a proportion of total resource need is of 73%. The funding gap increased from 51% in 2012 to a peak of 84% in 2015 and then fell to 83% in 2016. The reasons for the gaps noted here are markedly the high costs of new vaccine introduction, in this case PCV13 from 2012 and Rotavirus vaccine from 2014, for which funds are not yet guaranteed, pending GAVI financial approval if the application is recommended for approval by the independent review committee (IRC). Therefore, these funds have been classified as not secured. With GAVI financial approval for new vaccines, the overall gap with secured funds over the 5 years period decreases to 15%.

While the 58% gap in 2013 has the contribution of the OPV campaign funds, which were classified as not secured, the huge jump in the program financial gap between 2013 and 2014 (58% to 72%) is due to introduction of Rotavirus in 2014. Meanwhile, the pick in the gap in 2015 has a significant contribution of the additional cost of the follow up measles campaign in 2015, for which financing has also been classified as not secured. However, when probably funds are taken into account, the total funding gap out of the total resources requirement reduces significantly to 3% (table 12).

Table 17: Resource Requirements, Financing and Gaps\*

Resource Requirements, Financing and Gaps*	2012	2013	2014	2015	2016	Avg. 2012 - 2016
<b>Total Resource Requirements</b>	<b>\$23,508,115</b>	<b>\$26,619,430</b>	<b>\$43,762,712</b>	<b>\$47,938,803</b>	<b>\$46,585,202</b>	<b>\$188,414,263</b>
<b>Total Resource Requirements (Routine only)</b>	<b>\$23,508,115</b>	<b>\$24,536,127</b>	<b>\$43,762,712</b>	<b>\$43,719,426</b>	<b>\$46,585,202</b>	<b>\$182,111,583</b>
per capita	\$1.0	\$1.0	\$1.7	\$1.7	\$1.8	\$1.5
per DTP targeted child	\$31.8	\$31.1	\$52.1	\$49.5	\$50.2	\$43.6
<b>Total Secured Financing</b>	<b>\$11,592,171</b>	<b>\$11,311,695</b>	<b>\$12,376,100</b>	<b>\$7,907,239</b>	<b>\$8,112,129</b>	<b>\$51,299,334</b>
Government	\$3,989,119	\$4,129,826	\$4,514,564	\$4,551,738	\$4,718,121	\$21,903,368
Sub-national Gov.						
Gov. Co-Financing of GAVI Vaccine	\$1,084,748	\$1,039,956	\$1,673,605	\$1,536,625	\$1,613,718	\$6,948,652
Common Fund	\$1,553,744	\$1,553,055	\$1,437,212	\$1,818,876	\$1,780,290	\$8,143,177
GAVI	\$4,060,110	\$4,394,823	\$4,750,719			\$13,205,652
WHO	\$250,000	\$80,000				\$330,000
UNICEF	\$339,450	\$114,035				\$453,485
FDC - Moz CSO	\$315,000					\$315,000
<b>Funding Gap (with secured funds only)</b>	<b>\$11,915,944</b>	<b>\$15,307,735</b>	<b>\$31,386,612</b>	<b>\$40,031,565</b>	<b>\$38,473,073</b>	<b>\$137,114,929</b>
% of Total Needs	51%	58%	72%	84%	83%	73%
<b>Total Probable Financing</b>	<b>\$11,205,188</b>	<b>\$14,349,486</b>	<b>\$30,742,083</b>	<b>\$39,248,654</b>	<b>\$36,839,692</b>	<b>\$132,385,103</b>
Government	\$200,000	\$625,638	\$520,289	\$714,595	\$270,000	\$2,330,522
Sub-national Gov.						
Gov. Co-Financing of GAVI Vaccine				\$600,000		\$600,000
Common Fund	\$824,332	\$2,152,645	\$1,843,257	\$1,662,364	\$1,547,651	\$8,030,249
GAVI	\$9,305,856	\$8,741,203	\$26,823,537	\$31,266,449	\$33,333,884	\$109,470,929
WHO	\$115,000	\$830,000	\$450,000	\$1,250,000	\$550,000	\$3,195,000
UNICEF	\$760,000	\$2,000,000	\$1,105,000	\$3,755,246	\$1,138,157	\$8,758,403
FDC - Moz CSO						
<b>Funding Gap (with secured &amp; probable funds)</b>	<b>\$710,756</b>	<b>\$958,249</b>	<b>\$644,529</b>	<b>\$782,911</b>	<b>\$1,633,381</b>	<b>\$4,729,826</b>
% of Total Needs	3%	4%	1%	2%	4%	3%

Figure 7: Future secure financing and gap

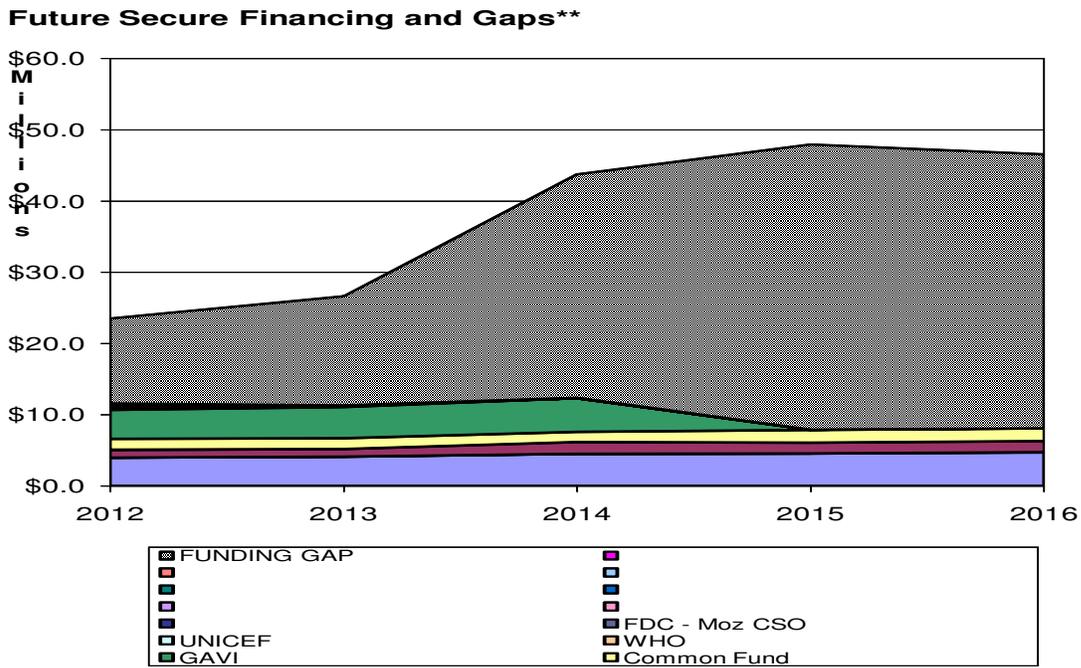
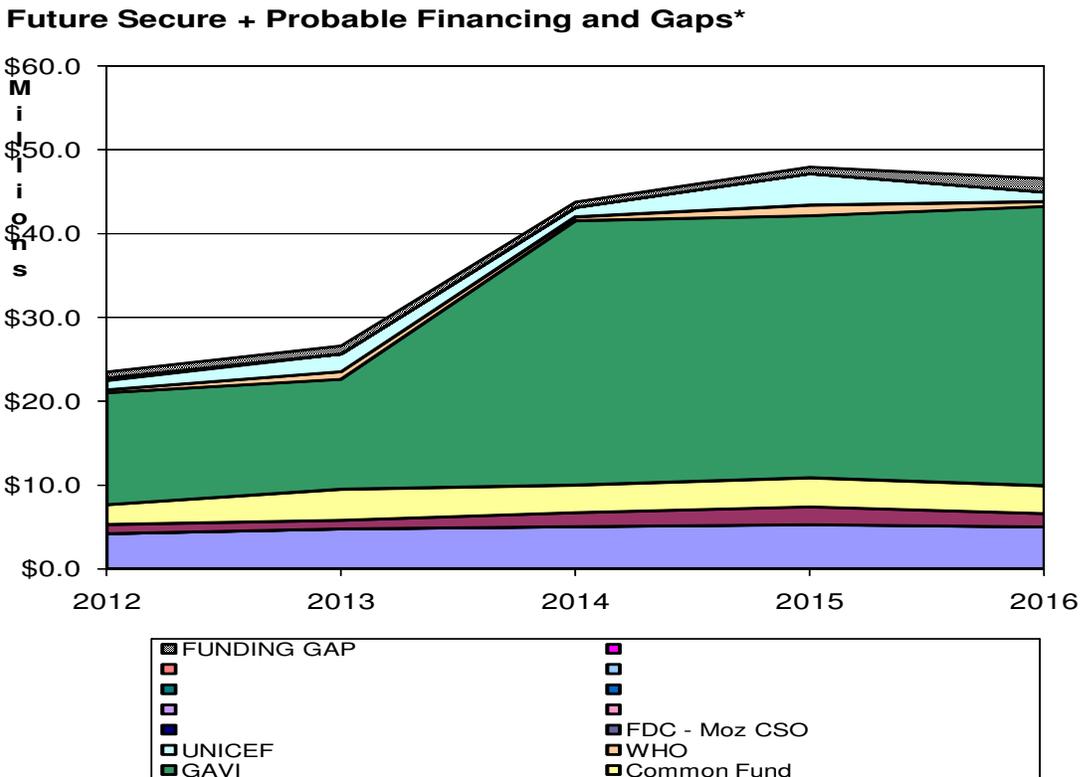


Figure 8: Future secure + probable financing and gap



### 5.5.2 Additional cost of introducing Pneumococcal vaccine

The introduction of pneumococcal vaccine adds an average of \$52.0 million to the EPI costs (\$51.0 million for PCV13 and \$1.0 million for injection safety devices) and is dependent on GAVI support, without which, funding from national government would not be feasible. This means that when the direct cost of pneumococcal vaccines is factored out, the total resource requirements for the planning period will reduce by \$52 millions. However, it should be noted that this reduction includes only vaccine and injection safety devices costs, and has not taken into consideration the associated costs of pneumococcal vaccine introduction in terms of cold chain expansion, training, update of M&E tools and social mobilization materials (see new vaccine introduction plan).

It is worth mentioning that the bulk of the vaccines and associated costs are borne by GAVI and other donors. The Mozambican government's investment in pneumococcal vaccine will be limited to total co-financing amount of \$2,825,021.

Table 18: Additional cost of adding PCV13 (vaccine & injection Materials only) and Rotavirus vaccine into National Immunization Program

	2012	2013	2014	2015	2016	2012-2016
New - PCV13	\$9 889 642	\$9 247 128	\$9 979 245	\$10 619 861	\$11 313 957	\$51 049 832
New - PCV13 - Injection Safety Devices	\$173 806	\$187 442	\$202 746	\$215 891	\$229 824	\$1 009 709
Total	\$10 063 448	\$9 434 570	\$10 181 991	\$10 835 752	\$11 543 780	\$52 059 541
New -Rotavirus	\$0	\$0	\$17 949 431	\$16 523 121	\$17 603 045	\$52 075 597
Total Additional Cost for all New Vaccines	\$10 063 448	\$9 434 570	\$28 131 423	\$27 358 873	\$29 146 825	\$104 135 139

## 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 4.1% – 6.7% with an average of 5.5% per annum. This is an increase of 2.6% from the 2010 baseline (2.9%). By considering only government health expenditure, the range was from 12.8% – 16.9% with an average of 14.5%. This is an increase of 4.4% from the base line value (10.1%). The details are shown in table 19 bellow.

Based on the proportion of cMYP resource requirements against total government health expenditure, this cMYP has a high chance of sustaining its financing up to 2013, if we consider that there is only a small increase in resources requirements as compared to the baseline. However, this is contingent on the fact that all the probable funding will gradually change into secure financing in advance of implementation of activities. In the absence of that, the programme is unlikely to implement all its stated activities according to the plan. However, from 2014, with the expected introduction of Rotavirus vaccine, the resources requirements double as compared to baseline. 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.

Table19: Macro-economic and sustainability indicators for cMYP 2012-2016

Macroeconomic and Sustainability Indicators	2010	2012	2013	2014	2015	2016
<b>Reference</b>						
Per capita GDP (\$)	\$354	\$392	\$410	\$427	\$443	\$459
Total health expenditures per capita (THE per capita \$)	\$21.0	\$24.0	\$26.0	\$27.0	\$28.0	\$29.0
Population	22,416,881	23,700,715	24,366,112	25,041,922	25,727,911	26,423,623
GDP (\$)	\$7,935,575,767	\$9,290,680,437	\$9,990,105,838	\$10,692,900,587	\$11,397,464,412	\$12,128,443,160
Total Health Expenditures (THE \$)	\$470,754,495	\$568,817,170	\$633,518,907	\$676,131,887	\$720,381,498	\$766,285,080
Government Health Expenditures (GHE \$)	\$136,518,803	\$182,021,494	\$221,731,617	\$256,930,117	\$288,152,599	\$321,839,734
Resource Requirements for Immunization						
Routine and Campaigns (\$)	\$13,739,063	\$23,316,187	\$26,370,526	\$43,547,767	\$47,954,692	\$46,466,045
Routine Only (\$)	\$13,739,063	\$23,316,187	\$24,287,223	\$43,547,767	\$43,735,315	\$46,466,045
per DTP3 child (\$)	\$21.2	\$31.5	\$30.8	\$51.8	\$49.5	\$50.1
<b>% Total Health Expenditures</b>						
Resource Requirements for Immunization						
Routine and Campaigns	2.9%	4.1%	4.2%	6.4%	6.7%	6.1%
Routine Only	2.9%	4.1%	3.8%	6.4%	6.1%	6.1%
Funding Gap						
With Secure Funds Only		2.1%	2.4%	4.6%	5.6%	5.0%
With Secure and Probable Funds		0.1%	0.1%	0.1%	0.1%	0.2%
<b>% Government Health Expenditures</b>						
Resource Requirements for Immunization						
Routine and Campaigns	10.1%	12.8%	11.9%	16.9%	16.6%	14.4%
Routine Only	10.1%	12.8%	11.0%	16.9%	15.2%	14.4%
Funding Gap						
With Secure Funds Only		6.4%	6.8%	12.1%	13.9%	11.9%
With Secure and Probable Funds		0.3%	0.3%	0.2%	0.3%	0.5%
<b>% GDP</b>						
Resource Requirements for Immunization						
Routine and Campaigns	0.17%	0.25%	0.26%	0.41%	0.42%	0.38%
Routine Only	0.17%	0.25%	0.24%	0.41%	0.38%	0.38%
<b>Per Capita</b>						
Resource Requirements for Immunization						
Routine and Campaigns	\$0.61	\$0.98	\$1.08	\$1.74	\$1.86	\$1.76
Routine Only	\$0.61	\$0.98	\$1.00	\$1.74	\$1.70	\$1.76

## **6.1 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 2012-2016 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 analyzed.

### **6.1.1 Opportunities**

Opportunities for funding exist at international and national levels. The recent signing of IHP+ (Compact), WHO, UNICEF, PROSAUDE, FDC amongst others, and the existence of strong SWAP and other coordinating mechanisms (MNCH SWAP, ICC, NCC, etc). Donors have in the past offered substantial resources for supplementary immunization activities (SIAs), reflecting their high level of confidence in the programme. EPI programme receives significant commitment from the Government of Mozambique. This commitment has been demonstrated through the baseline contribution of 10.1% (this is so due to high cost of underutilized pentavalent DPT-HepB-Hib vaccine, mostly financed by GAVI, and for which the Government pays only \$0.20 co-financing per dose – if the weight of pentavalent was factored out, the Government contribution would be above 50%).

### **6.1.2 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 (insecticide treated bed net distribution - ITNs), treatment of diarrhoea with low ORS and Zinc, Vitamin A supplementation, amongst others.

A country like Mozambique with per capita income of \$354 (in 2010, The WB indicators), 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.

## **6.2 Alternative policy scenarios for financial sustainability**

By taking into consideration the financing realities in country, the Government of Mozambique will explore all possible options to provide the best possible EPI programme to the population. The government will consider the programmatic implications, the impact on disease burden and poverty reduction and the impact on the achievement of Millennium Development Goal (MDG) 4 of the various options of financial sustainability.

The following alternative scenarios are explored with a view to assessing their effects on program costs:

- (i) Non-introduction of Pneumococcal and Rotavirus vaccines
- (ii) Cancellation of measles SIAs

By failing to introduce Pneumococcal vaccines in 2012 and Rotavirus vaccine in 2014, the total programme costs will reduce by \$104.1 million from 2012-2016, being 19.5 million in the period 2012 – 2013 related to PCV and 84.6 million in the period 2014 – 2016 related to both PCV and

Rotavirus vaccines. However, this has negative implication in terms of meningitis and diarrhoea diseases burden.

Although cancellation of well-spaced SIAs like that of Mozambique will reduce costs by 6.3 million (\$2.1 million for OPV in 2013 and 4.2 million for Measles in 2015), the implication of this choice is costly because it opens up the country to potential outbreaks. SIAs represent progress towards achieving a global goal, which Mozambique might not meet. Furthermore, resources for Polio and measles SIAs can be easily mobilized from Polio Eradication Initiatives, Measles Partnership and other donors than for the routine programme. These resources could be used to support capital investment, training, logistics in the routine programme. Therefore, lack of SIAs would affect the availability of such funds and all the benefits that come with them. The EPI requires the correct mix of alternatives that maintain the programme objectives while fitting within the global goals and financial realities of the country.

In conclusion, it has been demonstrated that all the proposed alternatives may lead to reduced programme costs but will likely lead to increases in disease burden. Instead of not introducing new vaccines or cancelling SIAs, government of Mozambique will come up with resource mobilization and financial sustainability strategies to support the EPI programme.

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. In addition to strengthening the routine immunization programme, supplementary immunization activities are taking place for polio eradication and measles elimination.

To address the gaps above described, the country has developed a financial sustainability strategy, which is detailed in the appropriate section below, 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. The fact that about 67% of the gap is represented by the cost of new and underutilized vaccines, mostly financed by GAVI, if the country application is approved the gap will reduce to less to about 33% with huge potential of being addressed with success through internal resource mobilization efforts.

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 and FDC (a civil society organization), and other donors providing support to Government budget under the Common Fund for drugs and vaccines and Central and Provincial Common Funds for recurrent and capital expenditures.

The program has also acquired financial support from the Global Alliance for Vaccines and Immunization (GAVI) that largely covers the funding gap for new vaccines and related injection supplies for the whole duration of the cMYP. Therefore, the program shall devise strategies to maintain program funding during and beyond this period.

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 2012-2016 has 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 Countries 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. HIPC and Debt relief initiatives offer an opportunity for this to happen.

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 2016. Meanwhile, additional partners locally shall be sensitized to support vaccine supplies from the outset.

Next, probable funds should be turn into secured ones, and EPI shall advocate regarding this aspect. There shall be targeted resource mobilization from specific partners, based on the respective cost category for which funds are required. For example, funding gaps for SIAs shall be taken up with the multilateral partners through whom most of the funds are usually channeled. The program shall have discussions with key partners that could support the introduction of Pneumococcal vaccine (PCV) in 2012, Polio SIAs in 2013 and measles SIAs in 2015. The program shall engage the traditional SIA partners such as Measles Partnership, UNICEF and WHO for funds at least 12 months prior to the planned SIAs. That will transform the probable funds to secured ones.

### ***Secure some resource input from decentralized local governments***

In addition, the programme 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 programme 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.

### ***Resources from local, non-governmental sources***

Avenues for resource mobilization and partnerships with the private sector shall be sought. This has proven successful with mass immunization campaigns.

#### **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 shall 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 shall 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 shall be the focus to enable faster release of resources and an increase in its allocation.

#### **6.3.3 Improving program efficiency**

The EPI program shall 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 the cMYP.

Regarding the human resources, the EPI unit at the central level needs to be strengthened with additional personnel. In this regard, the MOH with support from partners has recently developed a new EPI structure that captures all operational and support components of the EPI program. The vacancies in this new organogram are being gradually filled out with trained human resources at various levels. In addition, the unit shall 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 the last 4 years, the MOH with support from its internal partners has improved its cold chain capacity by purchasing new units for extending its fixed vaccination posts and replacing old and depleted cold chain at provincial and district levels. This activity will continue as planned in the EPI cMYP. Additionally, in its effort to implement the new EPI organogram, the MOH has deployed a cold chain maintenance technician in each province to support cold chain maintenance activities at provincial and district levels. For places where cold rooms have been installed (central and provincial levels), specialized services have been contacted for assistance to the cold rooms.

The present wastage rates at around 5% for underutilized vaccines and between 10 and 15 for other liquid vaccines shall be reduced through training on vaccine management and utilization of vaccine management tools at different levels (central, provincial and district).

In addition, the EPI program and the MOH shall 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 shall be done at the central level and 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. Again, in the context of its new EPI organogram, the MOH has recently deployed an EPI logistician in each province to support basically EPI logistic including effective vaccine management.

Finally, the National Immunization Program (NIP) 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, which is aiming at more efficient use of resources through better planning, EPI 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 will be offered to the population, such as deworming, Vit. A, mosquito treated bed nets, etc. 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.

Inability to achieve the above strategies may necessitate the adjustment of the programme objectives to fit within the financial realities. However, limiting coverage is not an option being considered by the 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 20: Financial sustainability progress monitoring indicators

<i>Strategies</i>	<i>Key Players</i>	<i>Indicator</i>	<i>Baseline*</i>
<b>Resource mobilization</b>			
Expansion of ICC	EPI team, old ICC members	Number of new ICC members	5
Mobilize additional Government resources	EPI team, Planning Department/ MOH, ICC	EPI budget as a proportion of Government health budget	2.9% in 2010
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
<i>Strategies</i>	<i>Key Players</i>	<i>Indicator</i>	<i>Baseline*</i>
<b>Increase reliability of resources</b>			
Increase reliability of public resources	EPI team, Planning Department/ MOH, ICC	Proportion of increase in program costs funded by government	10.1% in 2010
<b>Increase program efficiency</b>			
Reduce vaccine wastage	EPI team	vaccine wastage rate	15% in 2010
Increase vaccination offered through static unities	EPI team, Planning Department/ MOH, ICC	Proportion of health facilities offering vaccination services	88% in 2010
Use of private providers in providing vaccination and reporting to MOH	District EPI team, District Directorate of Health	Proportion of areas with no government health facilities using private providers for vaccination	0
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	20 - 25 in 2010

## 8. IMMUNIZATION PROGRAMME ANNUAL WORK PLAN FOR 2012

Table 21.1: Annual work plan (sample table)

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost\$	Funds available		Shortfall
																	Govt.	Partners	
<b>Service delivery and Programme Management</b>																			
1. Conduct micro-planning for RED in the context of integrated mother and child survival approach	Yes	District / HF level													EPI, MCH	\$145 000	\$50 000	\$70 000	\$25 000
2. Timely desimburse funds for implementation of planned activities	Yes	District												Financial Depart (central, prov. & district level)	\$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	\$400 000	\$60 000	\$340 000	\$0	
4. Conduct Child Health Days 2 times per year	Yes	District / HF level												EPI, MCH & Nutrition at all levels	\$382 905	\$43 455	\$339 450	\$0	
5. Engage nongovernmental organizations and private sector in the delivery of services	No	District / HF level												District Directorate of Health	\$0	\$0	\$0	\$0	
6. Implement African Vaccination Weeks	Yes	District / HF level												EPI & MCH at all levels	\$5 130		\$5 130	\$0	

Table 21.2: Annual work plan (sample table)

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost\$	Funds available		Shortfall
																	Govt.	Partners	
<b>Service delivery and Programme Management</b>																			
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	\$0	\$0	\$0	\$0
8. Conduct regular risk assessment for Polio importation & measles outbreak	Yes	District												EPI & Surv. Central level	\$0	\$0	\$0	\$0	
9. Introduce PCV *	Yes	District / HF level												EPI Unit all levels	*	*	*	*	
10. Conduct post PCV introduction evaluation														EPI & Surv Central level	\$70 000		\$50 000	\$20 000	
11. 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		\$80 000	\$20 000	
12. Institutionalize monthly meetings for data quality analysis at all levels	Yes	All levels												MCH, EPI & Surv Units at all levels	\$0	\$0	\$0	\$0	

\*Please see New Vaccine Introduction Plan

Table 21.3: Annual work plan (sample table)

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost\$	Funds available		Shortfall
																	Govt.	Partners	
<b>Service delivery and Programme Management</b>																			
13. 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
14. Regularly evaluate coverage per antigen and take appropriate corrective actions	Yes	All levels													EPI & Surv Units at Central, Provincial & District levels	\$0	\$0	\$0	\$0
15. Provide informatics materials and tools for data management process	Yes	District level													EPI & Surv Units at Central & provincial levels	\$50 000		\$50 000	\$0
16. 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	\$50 000		\$50 000	\$0
17. Conduct periodic auto-evaluation of quality of data in each district - DQS	Yes														MCH & EPI Units at Provincial & District levels	\$50 000		\$50 000	\$0
18. Train district teams in planning and implementation of integrated RED approach, in the context of mother and child survival	Yes	District / HF level													MCH, Nutrition, EPI & Surv Units at Central & Provincial levels	\$145 000		\$120 926	\$24 074

Table 21.4: Annual work plan (sample table)

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost\$	Funds available		Shortfall
														Govt.			Partners		
<b>Service delivery and Programme Management</b>																			
19. Conduct training for districts on MLM	Yes	District / HF level													EPI & Surv Units at Central & provincial levels	\$100 000		\$85 000	\$15 000
20. Develop standard integrated supervision checklist	Yes	Central													MCH, EPI & Surv Units at Central level	\$5 000		\$5 000	\$0
21. Conduct regular integrated supportive supervision to districts	Yes	All levels													MCH, EPI & Surv Units at all levels	\$70 000		\$60 000	\$10 000
22. Provide timely feed back	Yes	All levels													MCH, EPI & Surv Units at all levels	\$0	\$0	\$0	\$0
23. Update pre & in service curriculum and training materials	No	Central & Provincial levels													Central level Training Depart in collaboration with Central levels EPI & Surv Units	\$20 000		\$10 000	\$10 000
24. 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 & Surv Units	\$0	\$0	\$0	\$0

Table 21.5: Annual work plan (sample table)

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost\$	Funds available		Shortfall
														Govt.			Partners		
<b>Service delivery and Programme Management</b>																			
25. 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
26. Payment of salaries of full-time NIP health workers															Human Res Central & prov. level	\$2 211 311	\$1 490 000	\$721 311	\$0
27. Training / Refresh of NRA staff on vaccine regulatory oversight matters	No	Central level													NRA in collaboration with EPI Unit Central level	\$5 000		\$5 000	\$0
28. Disseminate the EPI cMYP and use it as an advocacy document															Central EPI & Surv Units	\$0	\$0	\$0	\$0
29. Dialogue with MoH Planning Directorate and MoF															Nat Direc Health	\$0	\$0		\$0
30. 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

Table 21.6: Annual work plan (sample table)

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost\$	Funds available		Shortfall
																	Govt.	Partners	
<b>Service delivery and Programme Management</b>																			
31. Coordinate immunization financing through the ICC to ensure adequate and appropriate donor support	Yes	Central level													ICC and EPI Unit Central level	\$0	\$0	\$0	\$0
32. 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
33. Conduct regular technical coordinating meetings, ICC meetings, feedback to partners															EPI Unit al Central level	\$5 000		\$5 000	\$0
34. Monitor vaccine wastage rate at all levels	Yes	All levels													EPI Unit al all levels	\$0	\$0	\$0	\$0
35. 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	\$60 000		\$30 000	\$30 000

Table 21.7: Annual work plan (sample table)

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost\$	Funds available		Shortfall
																	Govt.	Partners	
<b>Advocacy and communication</b>																			
36. Conduct studies on knowledge, practices and attitudes of communities, assess existing communication gaps in reaching communities and develop adequate social mobilization plan towards immunization & other child survival programs	Yes	Districts													Central EPI Unit in collaboration with Health Promotion	\$30 000		\$20 000	\$10 000
37. Develop evidence-based IEC and other social mobilization materials, print and disseminate	Yes	Central level													Central EPI Unit in collaboration with Health Promotion	\$75 000		\$50 000	\$25 000
38. 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		\$10 000	\$0
39. 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		\$5 000	\$0
40. Orientation of health workers, community health workers, staff of relevant partners	Yes	Districts													District EPI, MCH, Nutrition & Health Promotion	\$100 000		\$80 000	\$20 000

Table 21.8: Annual workplan (sample table)

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost\$	Funds available		Shortfall
																	Govt.	Partners	
<b>Advocacy and communication</b>																			
41. 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	\$101 359		\$50 000	\$51 359
42. Develop and use monitoring indicators	Yes	District & HF levels													Central EPI, MCH, Nutrition Units in collaboration with Health Promotion	\$0	\$0	\$0	\$0
43. Meetings with religious leaders from vaccination objectors	Yes	District & HF levels													All levels EPI, MCH, Nutrition Units in collaboration with Health Promotion	\$0	\$0	\$0	\$0
44. Conduct public media campaign and focal group discussions	Yes	Central, Provincial & District levels													All levels EPI, MCH, Nutrition Units in collaboration with Health Promotion	\$5 000		\$5 000	\$0

Table 21.9: Annual workplan (sample table)

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost\$	Funds available		Shortfall
																	Govt.	Partners	
<b>Surveillance</b>																			
45. Update and print surveillance manuals, guidelines and training materials	Yes	Central level													Central EPI & Surv Units	\$50 000	\$0	\$50 000	\$0
46. Disseminate updated manuals, guidelines and training materials	Yes	All levels													All levels EPI & Surv Units	\$5 000	\$5 000	\$0	\$0
47. Train / Refresh surveillance focal points	Yes	All levels													All levels EPI & Surv Units	\$100 000		\$80 000	\$20 000
48. 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	\$100 000	\$0	\$96 709	\$3 291
49. Provide adequate supply of specimen collection tools and reversal cold chain support at country level and Provide support for shipment of specimens from 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	\$30 000	\$0
50. Conduct active case search of AFP/Polio, Measles, MNT and other notifiable diseases																\$248 291	\$50 000	\$115 418	

Table 21.10: Annual workplan (sample table)

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost\$	Funds available		Shortfall
																	Govt.	Partners	
<b>Surveillance</b>																			
51. Conduct quarterly surveillance review meetings	Yes	Central, Provincial & District levels													EPI & Surv Units Central and Provincial levels	\$72 000	\$5 000	\$30 000	\$37 000
52. Regularly supervise and monitor activities and performance of surveillance system at all levels	Yes	All levels													All levels EPI & Surv Units	\$100 000	\$20 000	\$80 000	\$0
53. Provide regular and timely feed back 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	\$5 000	\$0	\$0
54. Document Polio Eradication, Measles control/elimination and MNT elimination activities	Yes	District & Provincial level													EPI & Surv Units Central level	\$0	\$0	\$0	\$0
55. Provide incentives to Surveillance and EPI focal persons	Yes	Provinces													EPI & Surv Units at Central level	\$60 000	\$0	\$60 000	\$0
56. Organize periodic meetings with different committees (NCC, NPEC & NTF)	Yes	Central level													EPI & Surv Units Central level	\$10 000	\$0	\$0	\$10 000
57. 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	\$40 000	\$10 000	\$10 000	\$20 000

Table 21.11: Annual workplan (sample table)

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost\$	Funds available		Shortfall
																	Govt.	Partners	
<b>Surveillance</b>																			
58. 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	\$5 000	\$5 000	\$0	\$0
59. 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	\$30 000	\$0	\$0	\$30 000
60. Conduct Rota disease burden assessment	Yes	Central & Provincial levels & CISM													INS, CISM in coordination with EPI & Surv Units Central level	\$5 000	\$0	\$5 000	\$0
61. 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	\$5 000	\$0	\$5 000	\$0
62. Provide adequate tools and training for AEFI reporting	Yes	Districts & HF level													EPI & Surv Units Central	\$5 000	\$0	\$5 000	\$0
63. 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

Table 21.12: Annual workplan (sample table)

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost\$	Funds available		Shortfall
																	Govt.	Partners	
<b>Vaccine supply, quality and Logistics</b>																			
64. 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	\$16 198 862	\$2 832 897	\$13 365 965	\$0
65. Distribution of vaccines and related injection safety materials	Yes	Districts / HF level												EPI Units at Central, Provincial and District levels	\$597 173	\$200 000	\$397 173	\$0	
66. Build incinerators in priority health facilities identified in each district	Yes	Districts / HF level												Envir Health in coordin with EPI Unit & Nursing Depart Units, Central & Prov levels	\$76 526	\$19 054		\$57 472	
67. Produce, print and distribute waste management guidelines	Yes	Districts / HF level												Envir. Health in coordin with EPI Unit & Nursing Depart Units, Central & Prov levels	\$5 000		\$5 000	\$0	
68. Train focal persons on waste management in priority health facilities in each district, and provide orientation to health workers in general on injection safety practices	Yes	Districts / HF level												Envir. Health in coordin with EPI Unit & Nursing Depart Units, Central & Prov levels	\$40 000			\$40 000	

Table 21.13: Annual workplan (sample table)

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost\$	Funds available		Shortfall
																	Govt.	Partners	
<b>Vaccine supply, quality and Logistics</b>																			
69. Train health workers on vaccine stock and cold chain management	Yes	All levels													EPI Units at Central, Provincial and District levels	\$10 000	\$0	\$10 000	\$0
70. Provide supportive supervision on vaccine management & cold chain at all levels	Yes	All levels													EPI Units at Central, Provincial and District levels	\$13 946	\$0	\$13 946	\$0
71. Install vaccine & related injection materials stock management tools at district level (DVDMT) and Train / Refresh focal persons on DVDMT tool at district level	Yes	Districts / HF level													EPI Units at Central, Provincial and District levels	\$10 000	\$0	\$10 000	\$0
72. 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	\$491 380	\$104 880	\$386 500	\$0
73. Produce and disseminate CC guidelines	Yes	All levels													Central level EPI Unit in coordin with Maiten. Depart	\$5 000	\$0	\$5 000	\$0
74. Refresh cold chain Maintenance technicians	Yes	Central & Provincial levels													Central level Maiten Depart in coordin with EPI Unit	\$15 000	\$0	\$15 000	\$0

Table 21.14: Annual workplan (sample table)

Activities	Consolidated and Integrated activities	Where	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Unit responsible	Cost\$	Funds available		Shortfall
														Govt.			Partners		
<b>Vaccine supply, quality and Logistics</b>																			
75. 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	\$144 427	\$44 427	\$100 000	\$0
76. Procure transport for EPI and Surveillance activities	Yes	All levels													Central level Procur Unit in coordin with Central EPI Unit	\$271 320	\$15 000	\$23 760	\$232 560
77. Maintenance of EPI offices, other capital equipment, water, electricity and overhead	Yes	All levels													All levels Maiten Depart in coordin with EPI Unit	\$368 485	\$164 154	\$204 331	\$0
78. Other capital investment	Yes	All levels													All levels Maiten Depart in coordin with EPI Unit	\$190 000		\$190 000	\$0

<b>GRAND TOTAL</b>	<b>\$23 508 115</b>	<b>\$5 123 867</b>	<b>\$17 590 619</b>	<b>\$710 756</b>
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## **9. LIST OF APPENDICES**

1. Vaccine requirement forecasting using WHO tool
2. Logistics forecasting using WHO tool