



MINISTRY OF HEALTH - GHANA
Immunization Programme
Comprehensive Multi-year Plan
(2010-2014)

In line with
Global Immunization Vision and
Strategies



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Executive Summary

The comprehensive multi-year plan (cMYP) is the medium term plan for the Expanded Programme on Immunization (EPI) in Ghana. As expected, it provides the strategic direction of the immunization programme for the period. The cMYP is always prepared in consonance with the 5-year strategic plan of the health sector. The current cMYP (2007-2011) had to be revised to 2014 to accommodate the plans to introduce three new vaccines – pneumococcal, rotavirus and second dose measles. After the development of the next health sector 5-year plan which is from 2012-2016, the cMYP will be revised and aligned to the health sector plan and period.

During the implementation period, Ghana will introduce two new vaccines, pneumococcal and rotavirus vaccines together with second dose measles into the routine immunization programme. This decision was reached at an Inter agency Coordination Committee (ICC) meeting chaired by the Deputy Director General of the Ghana Health Service (GHS) on Wednesday 5 August 2009 at UNICEF.

The goal is to reduce burden of vaccine preventable diseases with the view of contributing to the overall poverty reduction and health care strengthening in the country. The 5-year plan is guided by the above goal and also consistent with the five goals of the global immunization vision and aimed at the achievement of the millennium development goals (MDGs). The trend in routine immunization coverage, using Penta 3 as an indicator, has been upward over the years even though there are still challenges of low coverage below 80% in some districts. It is believed that the current planning process in line with the global vision for immunization will go a long way in addressing some of the gaps at all levels in a cost-effective manner.

There are enabling and impeding factors that affect effective implementation of all components of the immunization system in the country. Improved access and quality immunization services have been major challenges because of difficult terrain in most hard-to-reach areas and human resource constraints. In spite of these challenges there is Government commitment, dedicated service staff and effective collaboration from partners like GAVI, WHO, UNICEF etc to support and provide immunization services.

A lot of work went into developing this plan- from the stage of situational analysis, through costing and finally monitoring and evaluation. The progress of plan implementation will be monitored through time-tested mechanisms like departmental meetings and regular reviews at all levels. The role of the ICC in ensuring that the plan is on track cannot be over-emphasized. It is expected that this national plan will serve as a guide and template for regional and district annual plans during the period. The current plan is presented in five chapters as described briefly below:

Chapter 1: Country information - This describes the country profile and demographic information, administration and politics, the macroeconomic environment, the health status and the expanded programme on immunization (EPI) in Ghana.

Chapter 2: Situation analysis - This chapter provides information on the current issues and challenges of the immunization programme in Ghana. It further provides detail description of the strengths and weaknesses of all the components of the immunization system in the country.

Chapter 3: Goals, Objectives, Key Activities, Indicators and Milestones - In chapter 3 are the goals and objectives of the cMYP, the strategic components, key activities, indicators and

milestones. First there are key indicators and activities in relation to Goals and Strategic Objectives. There is also the Programme objectives, targets and milestones by components of immunization system in relation to regional and global goals. The chapter concludes with another table on strategic activities directed toward eliminating weaknesses. The activities advanced will strengthen functions that support the Program and will lead to the successful attainment of objectives within time lines.

Chapter 4: Costing, Financing and financial gaps - The chapter elaborates plans for financing and sustainability of the plan.

Chapter 5: Monitoring and evaluation - This is the final chapter that describes the monitoring and evaluation mechanisms put in place to ensure effective and efficient implementation of the plan.

Acronyms & Abbreviations

AD	Auto-Disable
AEFI	Adverse Events Following Immunization
AFP	Acute Flaccid Paralysis
BCG	Bacille Calmette-Guerin vaccine
CHPS	Community Health Planning and Services
CHPW	Child Health Promotion Week
cMYP	Comprehensive Multi Year Plan
DHS	Demographic Health Survey
DQS	Data Quality Survey
DPT	Diphtheria, Pertussis and Tetanus toxoid vaccine
EPI	Expanded Programme on Immunization
GAVI	Global Alliance of Vaccine and Immunization
GHS	Ghana Health Service
GIVS	Global Immunization Mission & Strategies
GoG	Government of Ghana
HCW	Healthcare workers
ICC	Inter-agency Coordination Committee
IDSR	Integrated Disease Surveillance Response
IEC	Information, Education and Communication
IMR	Information Mortality Rate
ISS	Institutional Strength Support
MDG	Millennium Development Goal
MNTE	Maternal and Neonatal Tetanus Elimination
MoH	Ministry of Health
MTEF	Medium-term Expenditure Framework
NGOs	Non-Governmental Organizations
NIDs	National Immunization Days
NT	Neonatal Tetanus
OPV	Oral Polio Vaccine
PHC	Primary Health Care
PPME	Policy, Planning, Monitoring and Evaluation
RED	Reaching Every District
SNIDs	Sub-national Immunization Days
SOCMOB	Social Mobilization
TT	Tetanus Toxoid vaccine

1 CHAPTER 1 – COUNTRY INFORMATION

1.1 General Profile and Demography

Ghana is a tropical country situated in the west coast of Africa and located between latitudes 4° and 11° N of the equator. Ghana shares common borders with neighbouring Togo to the East, Burkina Faso to the North, and Cote d'Ivoire to the West. The South is bounded by the Gulf of Guinea. At independence in 1957, Ghana's population was about 6 million, and increased to 6,726,815 in 1960 when the first post independence census was conducted. The 2000 National Housing and Population Census estimated Ghana's population as 18,769,911 with a national growth rate of 2.7%. Ghana's population is projected to reach around 25 million by the year 2010 and 28 million by the year 2014. Ghana's phenomenal population growth rate is as a result of the interplay of four main factors. These are the youthful age structure of the population which means that a large proportion of the population is concentrated in the reproductive or child-bearing ages; the persistently high fertility rates; the rapidly falling mortality rates and the volume, persistence and direction of migration flows in and out of the country.

Figure 1: Map of Ghana



The level of fertility in Ghana has remained very high. The reported Total Fertility Rate (TFR) ranged from 6 and 7 between 1960 and 1988. The 1998 Ghana Demographic and Health Survey (GDHS) report shows that there has been a slight decline of the TFR from 5.5 through 4.6 to 4.2 which is considered very high when compared with 2.0 for most developed countries. Infant mortality and under 5 mortality have worsened to 64 and 111 deaths respectively per 1,000 live births compared to 57 deaths and 108 deaths in 1998 respectively. However, the GDHS 2008 report indicates that Infant mortality has reduced to 50/1000 live birth and Child mortality has also reduced to 80/1000 live birth. Ghana has a pyramidal age structure due to its large

numbers of children below 15 years of age. Forty-four percent of the population is below age 15 while only 5 percent is above 65 years. There is a growing trend in rural-urban migration. There are slightly more women (53%) than men (47%) in the overall population, with a slightly higher concentration of women in the rural than urban areas (55% versus 51%). Life expectancy at birth is estimated at 57.7 years, with 55 years for males and 59.2 years for females.

The population density is varied. Nationally, it is estimated to be 77 per square kilometer (km²) but the distribution reflects a range of 897 in the Greater Accra Region to 31 in the Upper West Region. In effect, the population density in the northern half of the country, which also is the poorest economically, is very sparse. The density and population data has considerable implications for the kind of health professionals and providers required in the different regions and their distribution patterns nationally. Where the population is high and the density is high, the rule of synergy would require that staff and facilities are appropriately mixed to deliver more and better services. This is however not the case.

1.2 Administrative Profile and Governance

Ghana is a multi-party democratic country with a presidency, a cabinet, a parliament, and an independent judiciary system. These constitute national level structures with day-to-day functions administered through an established bureaucracy—ministries, departments and agencies (MDAs). The national institutions are responsible for policy and strategy development. For administrative and political purposes, Ghana is divided into ten regions: Ashanti, Brong-Ahafo, Central, Eastern, Greater Accra, Northern, Upper East, Upper West, Volta and Western Regions. Each region is headed by an appointed Regional Minister who represents the Head of State (the President of the country). The regional minister is assisted by a deputy regional minister and a Regional Coordinating Council (RCC), which among other things, co-ordinates and formulates integrated district plans and programmes within the framework of approved national development policies and priorities.

The country was divided into one hundred and thirty eight (138) administrative districts in 2004 and further divided into 170 in 2008. Each district is headed by a District Chief Executive (DCE), who is nominated by the President and approved by the District Assembly. The DCE chairs the Executive Committee of the District Assembly whilst an elected Presiding Member presides over the District's Assembly meetings. The District Assembly is the highest political and administrative authority in the district. The districts are also divided into unit areas and are headed by elected executives who are responsible for their area of jurisdiction. The government since 1980s has been vigorously pursuing the policy of decentralization to allow decision on development to be taken at the grassroots rather than the previous phenomenon where decisions were taken from the central point (top) and allowed to flow down. The division of the country into regions, districts, unit committees and others has implication for health management and administration in the country. The Health Sector uses this decentralization system and has further demarcated districts into Sub-districts. Traditional administration co-exists with the modern governmental structure. The traditional areas consist of Kingdoms, Chiefdoms and Traditional Councils that have important roles to play in all human endeavours especially in rural areas.

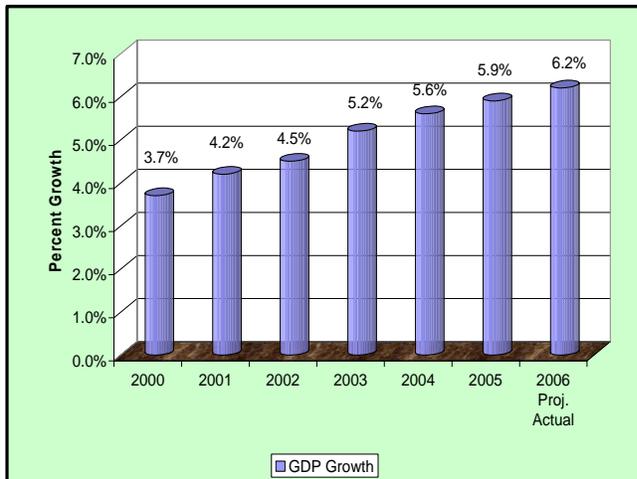
1.3 Macroeconomics of Ghana

Ghana continues to make strides in its developmental efforts. The country's HDI has seen an improvement from the previous ranking of 0.556 to 0.567, and placing at 129 out of 174 countries compared to 119th out of 162 countries in 2001. It increased marginally to 0.568 in 2003. Though Ghana is currently placed among Medium Human Development countries, it still ranks very low considering the average HDI (0.750). There are indications that Ghana's HDI will continue to improve in the coming years.

The Ghana Living Standard Survey (GLSS4) estimates that about 40 percent of Ghanaians are below the national poverty line, and 29.4 percent are below the hard-core poverty line, with the majority located in the rural areas. It should be stated that poverty incidence appears to have declined between 1991/92 and 1998/99 from 52% to 40%. Extreme poverty also declined from 37% to 29.4% over the same period. However, there are significant differences in the spatial distribution of poverty incidence. Five out of the ten regions in Ghana had more than 40% of their population living in poverty in 1999, with the three North Savannah Regions (the Upper East, Upper West and Northern Regions) experiencing poverty incidence ratios ranging between 69% and 88%. Of the ten regions the Upper East, Northern and

Central Regions experienced increases in poverty levels and extreme poverty in the 1990's (GPRS 2003). The high poverty rate in Ghana is also compounded by the fact that large majority of Ghanaians are estimated to be in employment are mostly rural peasant farmers and small scale traders in the informal sector with irregular income. Thus such poor people are more likely to get sick, stay sick and consequently have low productivity and income.

Figure 2: GDP Growth Rate 2000-2006



The Ghanaian economy has been performing well since 2000 with Gross Domestic Product (GDP) growth rate higher than 5%. Other positive achievements of the Ghanaian economy since 2000 include the relative stability of the cedi throughout the year, only depreciating by 4.7 percent against the US dollar. Also the overall budget deficit was contained at 3.4 percent of GDP. There were foreign exchange reserves at the Bank of Ghana (BoG) equivalent to 3.9 months of import or US\$1.012 billion. This achievement represents the highest since the liberalization of the foreign

exchange market in 1990. There was a general downward trend in annual inflation or Consumer Price Index (CPI) which is also translated into lowering of interest rates. The resilience of the economy has enabled the macroeconomic indicators to stand firm despite international inflation in areas like increase in international petroleum/fuel prices. The positive performance of the economy has a serious ramification for the health sector which relies on external markets for some of its inputs

1.4 Health Status

Improving the health status of the poor is crucial for poverty reduction in any country, given that ill health is a consequence and cause of poverty. However, in most developing countries like Ghana geographical and financial access is a major barrier to health care. A significant proportion of the people in Ghana still do not have access to health services and where the services are available, the cost deters them from accessing health. Access in this context, is defined as living within one hour travel time (by any available means) from the health facility. By this definition the government estimates that only 45% of the rural population has access to health services. Nationally about 40% of the population does not have access to health facilities (UNICEF 1998). In order to overcome this, community-based care delivered at health centers, at smaller facilities or through a penumbra of outreach services radiating out from static facilities is being advocated in Ghana as an effective way to extend and expand services to poor people in remote areas.

This new Ghanaian strategy for empowering communities to improve health status is a bottom-up close-to-client structure, which is anchored at community level and has a nodal district hospital with an intermediary sub-district level. This close to client strategy, for bridging equity gaps in access to quality health services and removing non-financial constraints to health care delivery, entails the definition of the concept of the 'whole district health systems'. At the heart of this system will be the expansion of the community-based health planning and services (CHPS) initiative. This strategy is in line with the Government's policy of locating 'nurses in every hamlet' in Ghana. The three tiers of the new 'whole district system', are linked on the service delivery side through bottom-top referrals and top-down

supervision on the management side, with monitoring and evaluation and accountability running both ways.

Table 1: Health Status Indicators 2002-2008

Indicator	2002	2003	2004	2005	2006	2007	2008
infant mortality rate per 1000 live births	57	64	64	64	64	64	50
under five mortality rate per 1000 live births	108	111	111	111	111	111	80
maternal mortality ratio per 100,000 live births	214	214	214	214	214	214	451
EPI coverage – Penta (DPT/HepB/Hib3)	77.9	76.0	76	85	84	88	87
EPI coverage – Measles	83.7	79.0	78	83	85	89	86
EPI Coverage - BCG	96	92	92	100	100	102	103
EPI coverage – OPV3 e	79	76.0	76	85	84	88	86
EPI Coverage - Yellow Fever	71	73	76	82	84	88	86
EPI Coverage - TT2+	68	66	62	71	68	71	76
AFP non polio rate (%)	2.4	1.44	1.49	1.76	1.65	1.7	2.4

*Coverage based on birth cohort instead of surviving infants

The CHPS approach will be oriented to deliver a specific basic package of services or essential interventions that are effective in reaching poor populations. This will be coupled with effective government stewardship that guides the contribution of public, private and voluntary services. The CHPS as a close-to-client system is designed to comprise of a set of CHPS zones within a sub-district, Sub-District health facilities (Health Centers) providing technical backstopping for these zones and at least a district Hospital which provides referral services for the Sub-district structures.

The CHPS requires a strong community involvement, without which any scaling up of investment in health or effective expanded coverage of the poor is unlikely to be achieved. But a sincere community-based drive would necessitate a different strategic approach, additional human resources and finances, and new support and supervision of strategies. In support of the CHPS initiative as a way of reducing geographical and service delivery barriers, the Technical Team on Health Service Provision of the GMHI recommended the following areas of action:

- ✚ Increasing the physical access to care in Communities by scaling up the establishment of Community Health Planning and Services (CHPS).
- ✚ It is recommended to complement CHPS with strategies for scaling up the establishment of community-based prepayment (insurance) schemes or Mutual Health Organizations as a process of removing financial barriers of communities' access to health care.
- ✚ Developing sound human resource production and management to reduce the rate of loss of health manpower. This should also lead to improving the quality and volume of services provided by government and private facilities especially at the District and Sub-district level to support and complement CHPS.

The health sector in Ghana has produced its third 5yr Programme of work (2007-11) in 2007. This strategic plan focuses on the creation of wealth through health and forms a

comprehensive strategy for contributing to the creation of wealth. At the same time it is designed to address the key concerns of the MDGs. The emphasis of this strategy is on preventing, promoting and regenerative health with special emphasis on nutrition, healthy lifestyle and environmental hygiene.

1.5 EPI in Ghana

The Expanded Programme on Immunization (EPI) which is responsible for immunization in Ghana is located within the Diseases Control Department (DCD) of the Public Health Division of the Ghana Health Service. It is headed by a Public Health Specialist and assisted by trained personnel who are specialists in areas that include logistics management, data management, cold chain management, injection safety, social mobilization and communication.

This figure illustrates the organizational structure of the Ghana Health Service with particular emphasis on EPI coordination and management in the country. With the Governments' decentralization and the primary health care policy implemented in the country, every district is mandated to determine its priority health needs and develop appropriate strategies and actions to address these needs. These policies have made district health teams autonomous in planning and implementing their health programmes with region and national levels playing advocacy, supervision and monitoring roles. Funds are disbursed from national through regions to districts. There are EPI managers at all levels responsible for the planning and coordination of immunization activities in the country.

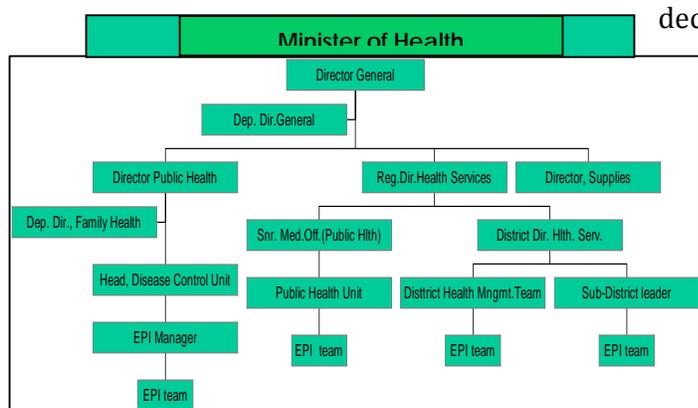


Figure 3: Organizational structure of EPI in the Ghana Health Service

The mission of the Immunization Programme in Ghana is to contribute to the overall poverty reduction goal of the government through the decrease in the magnitude of vaccine-preventable diseases. This is carried out through the use of cost effective, efficacious and safe vaccines, new and under used vaccines and technologies to protect more people whilst contributing to the overall health systems strengthening in an integrated manner. Ghana has been at the forefront of showcasing immunization as the platform for health systems strengthening.

Ghana launched the Expanded Programme on Immunization (EPI) in June 1978 with six antigens – BCG, measles, diphtheria-pertussis-tetanus (DPT) and oral polio for children under one year of age together with tetanus toxoid (TT) vaccination for pregnant women. The launch was in response to the national health policy to reduce morbidity and mortality of vaccine preventable diseases which then contributed significantly to both infant and child mortality in the country. It was also in consonance with the immunization policy of the government which sought to ensure that all children receive these vaccines before their first birthday of life. Three strategies are employed for the delivery of the immunization services in the country- static, outreach and campaigns to reach out to most of the unreached populations.

In 1992, fourteen years after the launch, the government added yellow fever vaccination to the national immunization programme (NIP). The Polio Eradication Initiative (PEI) introduced in 1996 offered a major boost to the NIP through the resources offered for capacity building at all levels, funds for operational activities, adequate cold chain logistics, systems strengthening, partnerships, transportation facilities etc. In January 2002, the Government of Ghana in partnership with the Global Alliance for Vaccine and Immunization (GAVI) initiative and supported by other health development partners such as WHO, UNICEF, World Bank, USAID, JICA, Rotary, DFID, DANIDA, Civil Society Organizations etc increased the number of antigens with two new vaccines - the Hepatitis B and the Haemophilus influenza type b (also known as Hib). The two new vaccines were combined with the DPT into DPT-HepB+Hib (commonly referred to as the Pentavalent vaccine in the country).

The Government of Ghana has been responsible for the total cost of traditional vaccines and injection supplies since the inception of EPI in 1978. It shares the cost of the Pentavalent and Yellow Fever proportionately with GAVI as agreed upon in the financial sustainability plan at the beginning of the introduction of the pentavalent vaccine in 2002 until 2007 when the country rolled-on to the co-payment scheme under the bridge financing mechanism. Development Partners (DPs) provide support in various forms including campaigns. Some of the partners support needy districts with additional resources to improve on their immunization programmes. Immunization coverage has been on steady increase and as at the end of December 2007, 106 districts out of the 138 in the country, representing 84% achieved penta3 coverage of more than 80%. Incidence of most of the childhood killer diseases in the country have declined significantly.

Table 2: New Immunization Schedule in Ghana

VACCINE/ ANTIGEN	DOSAGE	DOSES REQUIRED	MINIMUM INTERVAL BETWEEN DOSES	MINIMUM AGE TO START	MODE OF ADMINISTRATIO N	SITE OF ADMINISTRATIO N
BCG	0.05ml up to 11 months, 0.10ml after 11 months	1dose	None	At birth (or first contact)	Intra-dermal	Right Upper Arm
Pentavalent	0.5 ml	3doses 6, 10 and 14 weeks	4 weeks	At 6 weeks (or first contact after that age)	Intra-muscular	Outer Upper Aspect of Left Thigh
*Pneumo						Outer upper Aspect of Right Thigh
Polio	2 drops	4 doses At birth, 6, 10 and 14 weeks	4 weeks	At birth or within the first 2 weeks	Oral	Mouth
*Rotarix	1.2 ml	2doses 6 and 10 weeks	4 weeks	At 6 weeks (or first contact after that age)	oral	mouth
Measles 1 st dose	0.5 ml	2 doses 9 months	9 months	At 9 months	Sub-cutaneous	Left Upper Arm
*Measles 2 nd dose		18 months		At 18 months		
Yellow fever	0.5 ml	1 dose	None	At 9 months	Sub-cutaneous	Right Upper Arm
Tetanus Toxoid	0.5 ml	2 doses	One month	Pregnant Women	Intra-muscularly	Upper Arm
Vitamin A	100,000 IU 200,000 IU	10	6 months	6 months	Oral	Mouth

- New vaccines

2 CHAPTER 2 - SITUATION ANALYSIS

2.1 Current issues and challenges of EPI

Ghana implements EPI and Vaccine Preventable Disease Surveillance through the Reaching Every District (RED) approach in all 170 districts. In addition to the full implementation of all the components of the RED approach, the country has initiated other strategies such as targeting and supporting hard-to-reach districts, involvement and support for private midwives and market day immunization activities. These are implemented through partnership and collaboration with WHO and UNICEF. There is a functional ICC and other polio eradication technical committees such as National Polio Expert Committee (NPEC), National Certification Committee (NCC) and National Task Force (NTF) all leading and supporting the course of EPI to compliment efforts of the government. Though efforts have been made to strengthen the RED approach in all districts, challenges still exist. These include the following:

- Poor access to services in hard-to-reach districts and most urban centres
- Inadequate resources for regular outreach services to island and lake communities located in and around the Volta Basin. There are 17 districts located in the Volta Basin with over 5,000 communities inhabited by a large number of people who are mainly farmers and fisher folk
- Inadequate health staff to provide services required. Attrition has been a major contributing factor with most of the field staff leaving for higher studies.
- Poor cold chain maintenance and injection safety practices
- Weak community involvement and initiatives
- Weak supervision from the higher levels to the service delivery points.
- Weak VPD surveillance in most regions.

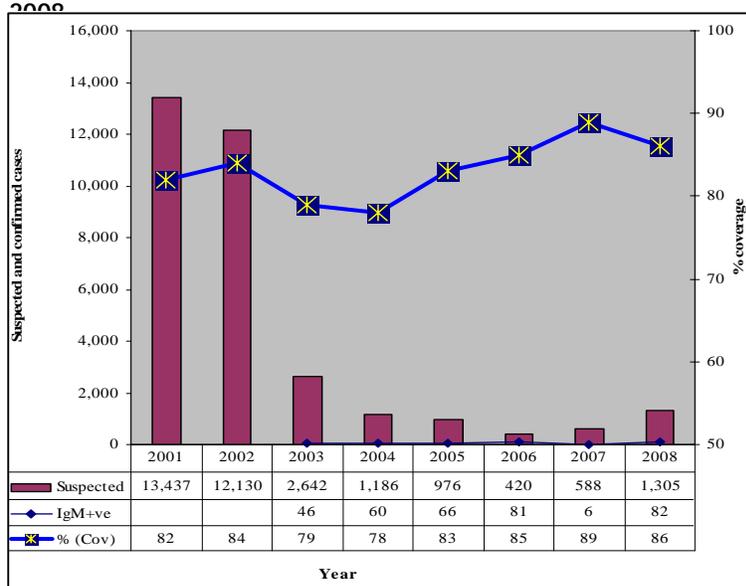
As part of efforts to address the challenges and weaknesses in the immunization system, a 5-year strategic plan for 2002-2006 was developed. The key areas addressed in the plan were;

- Ensuring availability of potent and safe vaccines and other related supplies
- Improving infrastructure
- Expansion of service delivery points
- Capacity building at all levels.
- Monitoring and evaluation including giving feedback
- Strengthening management capacity through MLM training
- Regular supportive supervision from national level to health facilities
- High level advocacy and social mobilization with a multi-sectoral approach
- Disease surveillance and response initiatives

During the implementation of the 5-year strategic plan (2002 – 2006) significant investments and strategies were put into place for the strengthening of EPI including GAVI support and the Reaching Every District (RED) approach, among others. A review of EPI performance at all levels was carried out in May 2004 that assessed the strengths and weaknesses of the programme, and also lessons learnt over the past five years.

There has been improvement in the immunization coverage indicators over the years. The trend of national coverage has shown increase of Penta3 from 76% in 2003 to 87% in 2008. The number of districts achieving Penta3 coverage of 80% or higher has increased from 55 (50%) in 2003 to 113 (82%) in 2008. Government is responsible for full cost of all traditional vaccines and immunization supplies and contributes about 45% of the cost of DTP- HepB+ Hib (Penta) vaccines introduced in 2002.

Figure 4: Suspected and reported cases of measles 2001-2008



As illustrated in the graph, the morbidity due to measles has reduced drastically over the years since the catch up campaign in 2002. There has not been any death due to measles since 2003 in the country.

Since the introduction of Hib vaccine in 2002, the number of meningitis cases due to Hib has declined with zero case since 2005 at Hib surveillance sites.

There was no wild polio virus in the country from September 2003 until September 2008 when Ghana suffered another setback after 2003 with 8 cases of wild

poliovirus reported in the Northern Region. Series of house-to-house polio outbreak response campaigns have been conducted to break transmission of the virus in the country. Outcome of the campaigns have shown positive result.

2.2 Performance analysis of EPI

The situational analyses of the programme as of December 2008 are presented in the table below;

Table 3: Situation analysis of the EPI system in Ghana, 2001 - 2008

Component	Indicators	YEAR							
		2001	2002	2003	2004	2005	2006	2007	2008
Service Delivery	National Penta3 coverage (%)	76	79	76	76	85	84	88	87
	Proportion of districts with Penta 3 coverage >80% (%)	52	54	52	52	73	78	83	83
Timeliness of reports	Number of district reporting	110	110	110	110	138	138	138	138
	Number of expected reports	1320	1320	1320	1320	1656	1656	1656	1656
	Number of reports received on time	1188	1267	1162	1120	1556	1656	1568	1416
	Completeness of district reports to national (%)	100	100	100	100	100	100	100	100
	Timeliness of district reports	90	96	88	85	94	100	95	86
Polio eradication	National OPV3 coverage (%)	80	79	76	76	85	84	88	87
	Proportion of districts with OPV 3 coverage >80% (%)	54	54	52	52	73	78	83	83
	Non-polio AFP rate	3.04	2.42	1.44	1.49	1.76	1.65	1.7	2.4
	Number of Wild polio cases confirmed	0	0	8	0	0	0	0	8
MNT Elimination	Coverage of TT2+ to pregnant women (%)	61	68	66	62	71	69	71	76
Measles	National measles coverage (%)	82	85	80	78	83	85	89	86
	Suspected measles cases	13437	12130	2642	1186	976	420	588	1305
	Confirmed IgM+ve cases			46	60	66	81	6	82

2.3 Polio Eradication Initiatives

Table 4: Summary of All SNIDS and NIDS Conducted in Ghana

Year	NID or SNID round	Date / month conducted	House-to-house imm. used (yes/no)	No. of < 5 yr olds targeted	No. of <5yrs reached with OPV	Reported coverage (%)
1996	NID	October 1996	No	3,584,643	3,154,486	88%
1996	NID	November 1996	No	3,584,643	3,441,257	96%
1997	NID	October 1997	No	3,612,811	3,540,555	98%
1997	NID	November 1997	No	3,612,811	3,685,067	102%
1998	NID	October 1998	No	3,804,129	3,956,294	104%
1998	NID	November 1998	No	3,804,129	3,994,335	105%
1999	NID	January 2000*	No	3,835,551	4,104,040	107%
1999	NID	February 2000*	No	3,835,551	4,219,106	110%
2000	SNID	25th-27th May	No	680,880	633,218	93%
2000	SNID	6 th - 8 th July	No	680,880	735,350	108%
2000	NID	20 th - 22 nd October	Yes	4,250,000	4,335,000	102%
2000	NID	24 th - 26 th Nov.	Yes	4,250,000	4,547,500	107%
2001	SNID	16 th -18 th April	Yes	2,478,000	2,410,997	97
2001	SNID	21 st -23 rd May	Yes	2,478,000	2,484,610	100
2001	NID	22 nd -24 th October	Yes	4,716,831	4,662,768	99
2001	NID	26 th -28 th Nov.	Yes	4,716,831	4,733,220	100
2002	SNID	3 th -6 th Oct	Yes	2,220,561	2,137,064	96
2002	SNID	8 th - 10 th Nov.	Yes	2,220,561	2,143,262	97
2003	SNID	13 - 15 th June	Yes	803,743	783,071	97
2003	SNID	18 th - 20 th July	Yes	803,743	820,634	102
2003	NID	24 th -26 th Oct	Yes	4,785,451	4,913,656	103
2003	NID	5 th - 7 th Dec	Yes	4,785,451	4,998,538	104
2004	NID	27 th - 29 th Feb	Yes	5,141,538	5,196,362	101
2004	NID	25 th - 27 th Mar	Yes	5,141,538	5,433,676	106
2004	NID	8 th -11 th Oct	Yes	5,219,210	5,418,395	106
2004	NID	18 th - 21 st Nov	Yes	5,219,210	5,504,492	107
2005	NID	25 th -27 th Feb	Yes	5,518,566	5,784,379	105
2005	NID	8 th -10 th April	Yes	5,518,566	5,760,027	104
2005	NID	11 th - 13 th Nov	Yes	5,518,566	5,725,618	104
2005	NID	9 th -11 th Dec	Yes	5,518,566	5,959,601	108
2006	NID	1 st - 5 th Nov	No	5,964,181	5,045,867	85
2007	NID	28 th - 30 th Nov	No	4,582,797	4,599,929	100.4
2008	NID	15 th - 17 th Oct	No	4,669,285	4,804,490	102.9
2008	SNIDs	13 th -15 th Nov	Yes	944,183	922,386	97.7
2008	SNIDs	11 th -13 th Dec	Yes	944,183	933,739	98.9

2.4 Advocacy

There is an Inter Agency Coordinating Committee (ICC) that meets quarterly and also on emergency basis to address EPI issues as prescribed by their terms of reference and responsibilities. The Deputy Director General of the Ghana Health Service (GHS) is the Chairman. All the major health development partners and private organizations are represented on the Committee. Most of the activities of the ICC have included the following:

- To foster solid partnership by collating all available inputs and resources from inside and outside the country in order to maximize resources for the good of the child
- Support national level to review and support work plans such as NIDs, EPI annual plans, EPI 5 year plans, surveillance plan etc
- Enhance transparency and accountability by reviewing use of funds and other resources together with the EPI Programme at regular intervals
- Support and encourage information sharing and feedback at national and or implementing levels within the country and interested partners outside the country
- Ensure that the Programme Manager receives both technical and political support that helps to validate his or her authority on issues pertaining to EPI.
- Address technical issues as and when they arise such as introduction new antigens, strengthening immunization services etc

The ICC will continue to play the advocacy role to solicit support for effective introduction of the intended new vaccines and the implementation of planned activities of the Immunization programme. It will also provide support for the resource mobilization initiative to harness resources for the immunization programme.

2.5 Communication

There is a 5-year (2003-2007) communication plan (2003-2007) which was developed at the time of introducing the pentavalent in 2002 and after and has been adopted every year for communication and social mobilization activities for all immunization programmes. The existing plan will be adopted and revised as usual for the introduction of the new vaccines.

In addition, there exist cordial relations between the Immunization programme and the Media in the country at national and regional levels. The Media has been used extensively for all immunization programmes for awareness creation and public education. There is always a press briefing and national launch for most immunization activities which are highly patronized by most of the Media. Radio and TV programmes are also used at national and regional levels.

Communication in most of the rural districts and communities has some challenges due to high illiteracy rate and resource constraints. In such difficult areas, gong-gong and town criers are the main resources used to disseminate information to the public together with community durbars. Most of the challenges are being addressed in collaboration with emerging local civil society organizations in the various districts and communities.

2.6 Surveillance

Ghana implements the integrated disease surveillance and response (IDSR) system that includes surveillance for vaccine preventable diseases (VPD) at all levels. In 2001, Ghana established two sentinel sites for the surveillance of paediatric bacteria meningitis (PBM) called Hib as part of requirements for the introduction of the haemophilus influenza type b (Hib) and hepatitis B into the routine immunization programme in 2002. The two sites in

Accra and Kumasi have been functional since inception until date. With the plan to introduce two new vaccines (pneumococcal and rotavirus) in 2011, two new sentinel sites have again been set up in Accra and Kumasi which have begun rotavirus surveillance. The Accra site was established in 2006 with the Kumasi site set up in 2009. In addition, the two sites in Accra and Kumasi which are already monitoring the Hib burden are to be resourced to undertake the pneumococcal surveillance as a starting point as efforts are made to expand the number of the sites to other parts of the country as an interim measure. For a permanent measure, a comprehensive surveillance plan has been drafted to mainstream the surveillance of all the new vaccines into the national IDSR system under the national surveillance department and to be implemented at all levels just as with the existing system.

2.7 Introduction of new vaccines into EPI

Ghana's first major challenge and experience in introducing new vaccines into the routine immunization programme was at the time of introducing the haemophilus influenza type b (Hib) and the hepatitis B vaccines in the combination of DPT-HepB+Hib (also referred to as pentavalent) in 2002 with GAVI support.

At the ICC meeting on Wednesday 5 August 2009, the Government of Ghana took another giant step with the decision to introduce two new vaccines, pneumococcal and rotavirus vaccines together with second dose measles into the routine immunization programme in January 2011. The plan is to undertake all preparatory activities from now until end of 2010 with media briefing and national launching in December 2010 to ensure smooth and successful introduction of all the three vaccines at all the immunization centres in the country on January 1, 2011.

The decision to introduce these vaccines was informed by presentations made on the burden of these diseases, estimated infant deaths to be averted and the health and economic benefits to be derived when these vaccines are provided in the routine immunization programme in the country. The objective as stated earlier is to reduce morbidity and mortality of these diseases in infants and under five populations as a step towards achieving MDG4 within the stipulated timeframe by 2015.

2.7.1 Specific reasons for introducing the selected vaccines

1. ***Pneumococcal vaccine*** - Pneumococcal disease is one of the most common bacterial causes of hospitalization in all age groups. Globally, approximately 1 million deaths per year are attributed to pneumococcal disease in children 5 years of age or younger. Studies by a group of experts on *Haemophilus influenzae* type b (Hib) and *Streptococcus pneumoniae* (Spn) and reviewed by an Independent Expert Advisory Group have estimated severe illness and deaths due to *Streptococcus pneumoniae* in children from one month to less than five years of age in Ghana as 71933 cases and 4216 deaths as at end of 2008 (IVB/EPI/HibSPGDB - WHO correspondence date 27 July 2009 to countries).
2. ***Rotavirus vaccine*** - Rotavirus infection is the leading cause of severe diarrhea among young children. An estimated 527,000 children aged <5 years die from rotavirus diarrhea each year with >85% of these deaths occurring in Africa and Asia. Each year it causes about 111 million cases of disease requiring home care only, 25 million clinic visits, 2 million hospitalizations and more than 500,000 deaths in children aged five or younger.

In Ghana, a study at Korle-Bu Teaching Hospital, La General Hospital and Princess Marie Loius Children's Hospital revealed that out of all diarrhea admissions, rotavirus constituted about 48% among 6-18 months age group and >65% during peak rotavirus seasons. Another study at Komfo Anokye Teaching Hospital and Agogo Presbyterian Hospital showed that rotavirus infection among children <5 years of age is 22.5% in both Outpatients and Inpatients department. 20.1% of all outpatients are infected with rotavirus and 32.2% of all inpatients shedding rotavirus. The infection is common in 6-18 months age group (>63%) and uncommon in older children and infants (<10%). 18% of all diarrhoea infections resulted in hospitalization¹.

3. Second dose Measles (MCV2) - The decision to introduce second dose measles (MCV2) into the routine immunization programme has been informed by the fact that the country has met most of the eligibility criteria as outlined in the AFRO measles TAG recommendations, and later outlined in the SAGE recommendations for MCV2 introduction, which include:

- ✚ More than three years consistently high immunization coverage above 80% since 2000 by the WHO/UNICEF estimate.
- ✚ Meeting both targets for the two principal WHO AFRO measles surveillance performance indicators in the years 2007 and 2008.

Ghana's eligibility has been endorsed by WHO AFRO based on the criteria above. To that effect a letter dated 30 June 2009 received from AFRO has identified Ghana as one of the countries in the sub-region which is eligible and encouraging the country to take advantage of the opportunity to introduce the vaccine as early as possible. Moreover, going by the SAGE recommendations, Ghana's intent to introduce MCV2 is in line with WHO recent policy recommendations

The introduction of the second dose in the routine programme will not lead to complete abolition of the periodic measles follow up SIAs, but will help to prolong the interval between campaigns. Provision of the second measles vaccine dose in routine EPI in the second year of life will also provide linkage with other priority health interventions such as the administration of vitamin A which is provided every 6 months from the age of 6 months.

2.7.2 Vaccine financing and management

The cost of the vaccines will be supported by GAVI through the co-financing mechanism. The procurement of vaccines and injection supplies will be done by UNICEF on behalf of the Government. Vaccine storage, distribution and utilization will follow the existing procedures of the vaccine and cold chain management in the immunization system. Vaccine estimation and wastage monitoring will also follow the existing procedures.

2.7.3 Post introduction evaluation

Following the experience from the introduction of the DPT-HepB+Hib in 2002, post introduction evaluation of the new vaccines will be conducted 18 months after introduction (2013) in the country to document lessons, gains and implications for future programmes.

¹ Armah, G, PHD, Presentation made at EPI ICC meeting held on 5 August 2009 at UNICEF Ghana Office.

2.7.4 Surveillance

The surveillance of these diseases will be conducted by the sentinel sites established and through the national integrated disease surveillance system.

2.8 Vaccines and Logistics

In Table 5 is the vaccines and injection supplies estimated for the five year period using the WHO Logistics costing tool.

Table 5: Total vaccine and supplies estimates (2010-2014)

Categories		2010	2011	2012	2013	2014	Total 5-years
Total Population		24,820,573	25,490,728	26,178,978	26,885,810	27,611,727	130,987,816
Total Births		992,823	1,019,629	1,047,159	1,075,432	1,104,469	5,239,513
Total Surviving infants:		943,182	968,648	994,801	1,021,661	1,049,246	4,977,537
Total Pregnant Women:		992,823	1,019,629	1,047,159	1,075,432	1,104,469	5,239,513
Total Vaccine estimates							
BCG	lyophilized	1,999,000	2,053,000	2,109,000	2,166,000	2,224,000	10,551,000
Polio	liquid	4,463,000	4,583,000	4,707,000	4,834,000	4,964,000	23,551,000
Measles	lyophilized	1,094,000	2,569,000	2,354,000	2,417,000	2,482,000	10,916,000
TT	liquid	1,999,000	2,053,000	2,109,000	2,166,000	2,224,000	10,551,000
YF	lyophilized	1,094,000	1,146,000	1,177,000	1,209,000	1,241,000	5,867,000
Pentavalent vaccine	liquid+lyop.	2,819,000	2,895,000	2,973,000	3,053,000	3,136,000	14,876,000
New vaccine PCV-xx	liquid	-	3,595,000	2,973,000	3,053,000	3,136,000	12,757,000
New vaccine Rota_liq	liquid	-	3,595,000	2,973,000	3,053,000	3,136,000	12,757,000
Total annual safe injection equipment required, including 25% buffer							
AD Syringe 0,05ml		1,110,000	1,140,000	1,170,000	1,202,000	1,235,000	5,857,000
AD Syringe 0,5ml		6,729,000	11,965,000	11,277,000	11,582,000	11,893,000	53,446,000
Syringes for dilution, 2ml		1,510,000	1,551,000	1,593,000	1,636,000	1,680,000	7,970,000
Syringes for dilution, 5ml		220,000	372,000	354,000	363,000	374,000	1,683,000

2.9 Cold chain capacity

Adequate cold chain in terms of sufficient storage capacity and effective vaccine distribution at both facility and stores levels is one the successes of the EPI Programme. In 2001 when Ghana planned to introduce the Pentavalent (DPT-HepB+Hib), the cold chain capacity was expanded by 30% to provide adequate storage space and distribution facilities.

Again using the WHO logistics planning tool, the existing cold chain capacity and the required capacity for the introduction of the new vaccines have been estimated in the following tables.

Table 6: National available positive vaccine store

		Formula	2010	2011	2012	2013	2014
A	Annual positive volume requirement, including new vaccine (specify: _____) (litres)	<i>Sum-product of total vaccine doses multiplied by packed volume per dose</i>	56,003 liter	79,755 liter	81,906 liter	84,107 liter	75,600 liter
B	Existing net positive cold chain capacity (litres)	#	50,000 liter				
C	Estimated minimum number of shipments per year required for the actual cold chain capacity	<i>A/B</i>	1.12	1.60	1.64	1.68	1.51
D	Number of consignments / shipments per year	<i>Based on national vaccine shipment plan</i>	4	4	4	4	4
E	Gap in litres	<i>((A/D) - B)</i>	- 35,999 liter	- 30,061 liter	- 29,524 liter	- 28,973 liter	- 31,100 liter
F	Estimated additional cost of cold chain	<i>US \$</i>	\$0	\$0	\$0	\$0	\$0

Table 7: National available negative vaccine store

		Formula	2010	2011	2012	2013	2014
A	Annual negative volume requirement, including new vaccine (specify: _____) (litres)	<i>Sum-product of total vaccine doses multiplied by packed volume per dose</i>	11,084 liter	11,382 liter	11,690 liter	12,006 liter	23,121 liter
B	Existing net negative cold chain capacity (litres)	#	6,250 liter	6,250 liter	6,250 liter	6,250 liter	6,250 liter
C	Estimated minimum number of shipments per year required for the actual cold chain capacity	<i>A/B</i>	1.77	1.82	1.87	1.92	3.70
D	Number of consignments / shipments per year	<i>Based on national vaccine shipment plan</i>	4	4	4	4	4
E	Gap in litres	<i>((A/D) - B)</i>	- 3,479 liter	- 3,405 liter	- 3,328 liter	- 3,249 liter	- 470 liter
F	Estimated additional cost of cold chain	<i>US \$</i>	\$0	\$0	\$0	\$0	\$0

The existing capacity and requirements for regional (intermediate) stores are also presented in the tables below:

Table 8: National required positive vaccine store

	Category		2010	2011	2012	2013	2014
A	Total net positive cold-chain capacity required for a storage period	<i>Total capacity needed</i>	14,001 litr	19,939 litr	20,476 litr	21,027 litr	18,900 litr
B	Existing net positive cold chain capacity (litres)	<i>Capacity currently available</i>	50,000 litr	50,000 litr	50,000 litr	50,000 litr	50,000 litr
C	Net additional positive capacity installed	<i>Additional capacity</i>	0 litr	0 litr	0 litr	0 litr	0 litr
D	Total net positive cold-chain capacity available	<i>Total capacity available</i>	50,000 litr	50,000 litr	50,000 litr	50,000 litr	50,000 litr

Table 9: National required negative vaccine store

			2010	2011	2012	2013	2014
A	Total net negative cold-chain capacity required for a storage period	<i>Total capacity needed</i>	2,771 litr	2,846 litr	2,923 litr	3,002 litr	5,780 litr
B	Existing net negative cold chain capacity (litres)	<i>Capacity currently available</i>	6,250 litr	6,250 litr	6,250 litr	6,250 litr	6,250 litr
C	Net additional negative capacity installed	<i>Additional capacity</i>	0 litr	0 litr	0 litr	0 litr	0 litr
D	Total net negative cold-chain capacity available	<i>Total capacity available</i>	6,250 litr	6,250 litr	6,250 litr	6,250 litr	6,250 litr

The cold chain equipment required for effective and successful introduction and sustainable implementation of the introduction plan over the five year period based on the assessment is presented in table 10 below:

Table 10: Cold Chain equipment requirement

Table 6.1: Capacity and cost (for positive storage)												
Regional stores		2014										
		Formula	ASR	BAR	CR	ER	GAR	NOR	UER	UWR	VOR	WR
A	Annual positive volume requirement, including new vaccine (specify: _____) (litres)	<i>Sum-product of total vaccine doses multiplied by packed</i>	17,293 liter	8,103 liter	6,894 liter	8,624 liter	15,020 liter	8,320 liter	3,680 liter	2,418 liter	6,963 liter	9,071 liter
B	Existing net positive cold chain capacity (litres)	#	1,648 liter	939 liter	758 liter	1,371 liter	1,587 liter	12,500 liter	432 liter	545 liter	1,404 liter	1,554 liter
C	Estimated minimum number of shipments per year required for the actual cold chain capacity	A/B	10.49	8.63	9.09	6.29	9.46	0.67	8.52	4.44	4.96	5.84
D	Number of deliveries / shipments per year	<i>Based on national vaccine distribution</i>	6	4	4	4	6	6	4	4	4	6
E	Gap in litres	$((A/D) - B)$	1,234 liter	1,087 liter	965 liter	785 liter	916 liter	- 11,113 liter	488 liter	60 liter	337 liter	- 42 liter
F	Estimated additional cost of cold	US \$	#DIV/0!	\$20,869	\$18,550	\$74,987	#DIV/0!	\$0	\$9,275	\$0	\$6,956	\$13,913
Capacity and cost (for negative storage)												
Regional Stores		2014										
		Formula	ASR	BAR	CR	ER	GAR	NOR	UER	UWR	VOR	WR
A	Annual negative volume requirement, including new vaccine (specify: _____) (litres)	<i>Sum-product of total vaccine doses multiplied by packed</i>	2,468 liter	1,157 liter	984 liter	1,231 liter	2,144 liter	1,187 liter	525 liter	345 liter	994 liter	1,295 liter
B	Existing net negative cold chain capacity (litres)	#	210 liter	216 liter	264 liter	641 liter	145 liter	6,250 liter	110 liter	63 liter	183 liter	264 liter
C	Estimated minimum number of shipments per year required for the actual cold chain capacity	A/B	11.75	5.35	3.73	1.92	14.79	0.19	4.78	5.48	5.43	4.90
D	Number of deliveries / shipments per year	<i>Based on national vaccine distribution</i>	4	4	4	4	4	4	4	4	4	4
E	Gap in litres	$((A/D) - B)$	407 liter	73 liter	- 18 liter	- 333 liter	391 liter	- 5,953 liter	21 liter	23 liter	66 liter	60 liter
F	Estimated additional cost of cold	US \$	\$4,299	\$1,665	\$0	\$0	\$4,299	\$0	\$2,307	\$2,307	\$0	\$0
Cold chain capacity need assessment												
Regional stores		2014										
			ASR	BAR	CR	ER	GAR	NOR	UER	UWR	VOR	WR
A	Total net positive cold-chain capacity required for a storage	<i>Total capacity needed in 2014</i>	4,323 liter	2,026 liter	1,723 liter	2,156 liter	3,755 liter	2,080 liter	920 liter	605 liter	1,741 liter	2,268 liter
B	Existing net positive cold chain capacity (litres)	<i>Capacity currently available</i>	1,648 liter	939 liter	758 liter	1,371 liter	1,587 liter	12,500 liter	432 liter	545 liter	1,404 liter	1,554 liter
C	Total net negative cold-chain capacity required for a storage	<i>Total capacity needed in 2014</i>	617 liter	289 liter	246 liter	308 liter	536 liter	297 liter	131 liter	86 liter	249 liter	324 liter
D	Existing net negative cold chain capacity (litres)	<i>Capacity currently available</i>	210 liter	216 liter	264 liter	641 liter	145 liter	6,250 liter	110 liter	63 liter	183 liter	264 liter

Table 11: Cold Chain Equipment needs (2010-2014)

Level	TYPE OF EQUIPMENT				
	WICR	TCW 3000	TCW 2000	TFW 800	COLD BOXES
National	-	-	-	-	-
Regions					
Ashanti	1	-	-	3	139
Brong Ahafo	1	-	-	1	65
Central	1	-	-	-	55
Eastern	1	-	-	-	69
Greater Accra	1	-	-	3	120
Northern	-	-	-	-	67
Upper East	1	-	-	1	30
Upper West	1	-	-	1	19
Volta	1	-	-	1	56
Western	1	-	-	1	73
Total	9	-	-	11	693

Table 12: Available equipment to support expansion

Model	SOURCE OF SUPPORT			TOTAL
	JICA	USAID	UNICEF	
WICR	8	0	1	9
TCW3000	67	0	10	77
TCW2000	30	21	40	91
TFW800	0	0	20	20
SOLAR FR	0	0	8	8
GAS FR	0	0	10	10

Government had earlier planned an extensive expansion of the cold chain capacity in anticipation of introducing new vaccines such as malaria, pneumococcal, meningococcal rotavirus etc anytime such vaccine become available. In view of this, Government had secured support of some partners to procure cold chain equipment ready (as

presented in the table below) for installation in regions and distribution to districts and sub-districts to increase capacity at these levels.

2.8 Dry storage needs

There is adequate dry storage capacity at national and regional levels. With the plan to construct rooms for the installation of the Walk-in cold rooms (WICR) in each region, provision will be made for additional storage space in the regions.

2.9 Strengths and Weaknesses of the EPI System

Table 13: Strengths and weaknesses of EPI by system components, Ghana, 2009

SYSTEM COMPONENT	STRENGTHS	WEAKNESSES
Vaccine supply and quality	<p><u>Procurement and distribution</u></p> <ul style="list-style-type: none"> ▪ Timely forecast and procurement of vaccines and injection safety materials through UNICEF ▪ Government of Ghana paying 100% for BCG, OPV, Measles, YF and TT vaccines, and some injection safety materials ▪ Quarterly distribution plan from national to regions established ▪ Monthly delivery of vaccines and other EPI logistics from region to districts and sub-districts ▪ Bundling concept adequately practiced in the country ▪ Stock control system for vaccines and other EPI logistics fully functional at national level <p><u>Vaccine management</u></p> <ul style="list-style-type: none"> ▪ Tools for stock control available at all levels ▪ VVM on most vaccines; Multi Dose Vial Policy (MDVP) practiced at all service delivery level. ▪ Vaccine utilization monitoring initiated in sentinel districts in 2004. ▪ Vaccine wastage monitoring for all vaccines included in the monthly returns form. ▪ National Regulatory Authority (NRA) in place as the Food and Drugs Board. This is the Body charged with ensuring the registration, lot release, quality, safety and efficacy of vaccines used in the country. It also works closely with the National Ethics Committee which oversees all clinical trials. 	<ul style="list-style-type: none"> - District level data not used for forecasting vaccines and other logistics. - Poor documentation on vaccine usage at the district and sub-district levels - Constrained transport situation especially at district and service delivery levels. - Vaccine potency testing for different levels not being carried out. - Vaccine utilization / wastage monitoring data from sentinel districts no more functioning.
Logistics	<p><u>Cold Chain</u></p> <ul style="list-style-type: none"> - Increase in logistics base through support from JICA & other partners. - Existence of cold chain corrective and maintenance teams at national level with regional equipment managers supporting regions and districts. <p><u>Injection safety and waste management</u></p> <ul style="list-style-type: none"> ▪ Policy, standards and guidelines on injection safety and waste management available and being implemented ▪ Committee in place to coordinate injection safety within MOH ▪ All health facilities (100%) are using AD syringes for immunizations 	<ul style="list-style-type: none"> - Irregular cold chain maintenance at all levels. - Irregular power and gas supply at district and lower levels - Inadequate supply of spare parts especially for solar powered refrigerators. - Poor use of safety boxes and pits at the health facilities. - Available incinerators not usually use for waste disposal

SYSTEM COMPONENT	STRENGTHS	WEAKNESSES
	<ul style="list-style-type: none"> ▪ Plans are advanced to use AD syringes in all health care service delivery in the country ▪ One De Montfort Mark 8a type incinerator in each of the 133 districts. Construction of new incinerators to continue in 37 districts including new districts ▪ Incinerator operators have been trained and provided with protective gear 	<ul style="list-style-type: none"> - The available incinerators are not sufficient for the service delivery areas
Service delivery	<ul style="list-style-type: none"> - Dropout rate declining but has not reached the acceptable level of less than 10%. Others also report negative drop outs - Reduction in morbidity and mortality due to VPDs especially measles, polio, neonatal tetanus and Hib (Hib meningitis in infants). - Additional vaccines introduced into EPI without interruption of services. - Plans to establish burden of pneumonia diseases for the introduction of pneumococcal vaccine initiated. - Integration of EPI with other child survival strategies e.g. Vit A supplementation, deworming, growth monitoring through strategies such as SOS, SIAs, CHPW and IMCH campaigns etc. 	<ul style="list-style-type: none"> - 22% (31/138) of the districts have DPT3 coverage less than 80% in 2008. - High attrition rate and inadequate skills among health workers at service delivery level - Minimal involvement of the private sector and community in planning and implementation of services especially outreaches. - Poor utilization of data for decision making
Advocacy and communication	<ul style="list-style-type: none"> - High community awareness about immunization which has resulted in increased demand for services - High level of political involvement - Communication strategic plan in place - Assigned Personnel for communication at national and regional levels - Involvement of cultural leaders in advocacy - Community-based volunteers are mobilized for NIDs 	<ul style="list-style-type: none"> - Inadequate interpersonal communication (IPC) skills among health workers - Lack of IEC materials for routine immunization - Some of the existing IEC materials are not in local languages - Inadequate audio-visual equipment including film vans - Most districts do not have EPI communication included in their district work plans. - Communication plan not updated since 2005.
Surveillance	<ul style="list-style-type: none"> - Surveillance for AFP, measles, NNT, Paediatric Bacterial Meningitis (PBM), yellow fever and rotavirus is being implemented within the Integrated Disease Surveillance and response (IDSR) framework. - Plan to establish pneumococcal surveillance centers in place - The country was polio free between September 2003 and September 2008. - Case based measles surveillance implemented in all districts - Functional national polio certification committee (NCC), national polio expert committee (NPEC) and National Polio Laboratory Containment Task Force (NTF) - Case definition guidelines for MOH priority diseases have been developed 	<ul style="list-style-type: none"> - Decline in the non polio AFP detection rates - Diphtheria and pertussis not on MOH priority diseases list for surveillance - Weak community based surveillance system - Less than 50% of the districts are carrying out case based NNT surveillance

SYSTEM COMPONENT	STRENGTHS	WEAKNESSES
Programme management	<p><i>Policy, planning and management</i></p> <ul style="list-style-type: none"> - EPI policy updated - Structures for partner coordination are in place: ICC, NCC, technical committees with strong collaboration with partners - Integrated bottom up planning within the districts - Review meetings held at district and health facilities - Strong managerial skills at the district level <p><i>Supervision</i></p> <ul style="list-style-type: none"> - Integrated supervision plan and checklist at national & district level - Feedback provided to all levels on a regular basis - Technical assistance provided by partners for specific areas. <p><i>Operational Research</i></p> <ul style="list-style-type: none"> - Operational research on-going at the national level 	<ul style="list-style-type: none"> - Copies of EPI policy, standards, guidelines and work plans are not available at all levels - Adhoc activities disrupt planned activities at national level - Poor coordination of partners at district level. - Districts not implementing all planned activities <ul style="list-style-type: none"> - Irregular technical support supervision especially from national to districts and from regions to health facilities <ul style="list-style-type: none"> - Follow up of recommendations from studies not regularly implemented
Strengthening human and institutional resources	<ul style="list-style-type: none"> - Human Resource structure/staffing norms available at all levels with skilled manpower at the implementation level - Training needs assessment was conducted in 2004 that informed the need for MLM training at all levels including non EPI staff - National level trainers for MLM trained - Regional and district level MLM training done - EPI content in the pre-service training curriculum reviewed 	<ul style="list-style-type: none"> - Required staff not attained at national, district and health facility levels - Staff not trained in logistics - Planned training not implemented
Sustainable financing	<ul style="list-style-type: none"> - Financial Sustainability Plan (FSP) was developed at national level with involvement of all stakeholders. - Funds available at district level for implementation of EPI activities through the Primary Health Care (PHC) conditional grant - GoG consistent with its contribution to the DPT-HepB+Hib vaccine cost as outlined in the FSP 	<ul style="list-style-type: none"> - Contribution to the programme costs by GoG has been declining despite the increase in target population and coverage - Delays in disbursement of funds to the districts. - Delayed accountability of funds advanced for implementation of activities at all levels.

SYSTEM COMPONENT	STRENGTHS	WEAKNESSES
Accelerated Disease Control	<p><i>Polio Eradication</i></p> <ul style="list-style-type: none"> - Increasing trends in OPV3 coverage at national level with current coverage above 80% - No case of Wild Poliovirus has been detected since 2003 - Ghana successfully submitted documentation to ARCC in 2007 for polio free status. <p><i>Maternal & Neonatal Tetanus Elimination</i></p> <ul style="list-style-type: none"> - Gradual increase in TT2+ coverage among pregnant women - Phased implementation TT SIAs targeting women 12 – 49 years in 59 high-risk districts <p><i>Measles Control</i></p> <ul style="list-style-type: none"> - Measles coverage at national level is below 90%. - Following the under-15 campaigns in 2002, suspected cases of measles have reduced drastically from about 12130 to 1305 in 2008 - Case based measles surveillance rolled out nationwide. 	<ul style="list-style-type: none"> - 27% (37/138) of the districts have OPV3 coverage less than 80%. - Declining trends of the non-polio AFP rate in some regions. <ul style="list-style-type: none"> - National TT2+ coverage among pregnant women still less than 80%. - Documentation of TT coverage results still a challenge <p>Not all districts are reporting suspected measles cases</p>

3 CHAPTER 3: GOALS, OBJECTIVES, KEY ACTIVITIES, INDICATORS AND MILESTONES

3.1 Introduction

The National Immunization Programme is one of the most successful and cost effective programmes implemented in Ghana. The uniqueness of the NIP has been the innovativeness and adaptation it has gone through with the support of national and international partners. As a vertical programme the NIP has successfully transformed itself and integrated within the country's decentralized health system. EPI in Ghana aims at protecting every child in Ghana from nine common childhood diseases; namely, tuberculosis, poliomyelitis, diphtheria, neonatal tetanus, whooping cough, hepatitis B, haemophilus influenza type b, measles and yellow fever. The development of immunization in Ghana was very slow in the early 1990s. In the early 2000s, the delivery was accelerated with the global initiative and support from GAVI. Subsequently with the introduction of new and underutilized vaccines and sustained NIDs, more children have been immunized. Greater attention has also been drawn to the importance of the national immunization programme and its integration with the health systems, gaining overall policy support.

Immunization continues to be one of the most cost-effective of all child survival health interventions. Traditionally, immunization has had children and women as the main foci of attention but recently this is being broadened to include the wider population in line with the current global immunization vision and strategy (GIVS).

Ghana intends to introduce two new vaccines (Rotavirus and Pnneumocco) and a second dose for measles.

3.2 Goals, Objectives and strategic components of the cMYP

This comprehensive Multi-Year Plan (cMYP) of Action covers the fiscal years 20010-2014. The objectives and activities set forth in this Multi-Year Plan provide the framework required to meet the previously stated goal of reducing infant and child mortality and morbidity associated with vaccine -preventable diseases (VPD). Further, this Plan addresses new challenges and expands the previous plan by providing guidelines for the introduction of new vaccines.

The 2010-2014 cMYP of Ghana is aimed at achieving five major goals which are within the context of the goals of GIVS with strategic components as described below:

- Goal 1 : Reach out and protect more people than being done currently
- Goal 2 : Rapidly increase immunity to selected VPDs in order to accelerate Reduction of morbidity and mortality from VPDs
- Goal 3 : Introduce New & Under-utilized Vaccines
- Goal 4 : Strengthen surveillance
- Goal 5 : Integrate EPI with other Interventions in the context of Health System Development

3.2.1 Objectives of the cMYP

Ghana immunization objectives are linked to the sector objectives (objective 3) and the efforts for achieving the MDGs. The specific objectives of the National Immunisation Programme are

1. Reach everyone targeted for immunization to achieve and sustain by 2014, 94% coverage in all childhood immunisations and 85% for Tetanoid Toxins for Pregnant women
2. Improve communication, advocacy and information dissemination
3. Strengthen surveillance system
4. Improve programme management and integration with health systems

3.2.2 Strategies

Ghana will adopt well tested strategies to achieve the stated objectives. These strategies are cross cutting and will impact on all the objectives.

Strategy 1: Reach every child by strengthening the RED strategy

The Ghana Immunization Programme has as a primary strategy to ensure that every child in every district is reached and immunized. This will be achieved through a combination of routine immunization and NIDs. The routine immunization programme will be strengthened and supported especially in “hard to reach” areas and regional capitals. Through advocacy, the CHPS expansion programme will target these hard to reach areas as a priority and reach them through the establishment of functional zones.

Strategy 2: Strengthen safe injection practices and waste disposal

The goal is to ensure that no harm is done to the child, health worker and the community. To achieve our objectives of quality immunization service delivery, the use of auto-destruct needles introduced in 1996 will be strengthened and maintained. All districts will be supported in the use safety boxes and incinerators. As of now, over 133 districts have been provided with incinerators and there are plans to extend this to the remaining 37 districts and selected large health facilities.

Strategy3: Achieve vaccine independence through continuous advocacy and mobilization -

Currently, the Government of Ghana (GoG) has increased its contribution to health to 15% of total government expenditure (2008) and will potentially increase with the implementation of the NHIS which by law allocates a percentage of their funds to the MoH. Advantage will be taken of the GAVI Alliance support through the bridge financing. The comprehensive multi-year plan by itself is aimed at ensuring sufficient and sustainable immunization programme financing. We will continue to work with health partners and other stakeholders whilst staff are educated to be more efficient in the use of vaccines to ensure financial sustainability.

Advocacy will continue for effective resource mobilization to ensure the sustainability of this initiative.

Strategy4: Ensure Effective Cold Chain and Vaccine Management

To ensure potency of vaccines from purchase to utilization, adequate cold chain and effective management are primary. Preventive maintenance will continue to be promoted. Vaccine storage will also continue to be decentralized with regions being supported to have cold rooms and human capacity will be improved to manage the system.

Strategic component – 5: Ensure quality of service - Capacity will be enhanced through frequent training on new technologies and refresher training on old ones. These training will be structured like MLM and on-the-job trainings. Supportive supervision and monitoring will be strengthened at all levels with feedback provided. Motivation of staff will be a component to be properly addressed.

Strategy6: Strengthen Advocacy, Communication and IEC - Strengthen EPI Programme Communication and advocacy and collaboration with NGOs and other civil society organizations (CSOs)

Strategy 7: Sustain the benefits of integrated interventions through SIAs.- The essence of campaigns is to reach large proportions of the target population over a very short period. Immunization campaigns will be carried out as required.

Child Health Promotion Week (CHPW) has now been institutionalized in Ghana as an annual activity. The week, which is celebrated in the 2nd week of May every year, will continue to be used to advocate and sensitize the community to demand child survival services like immunization, Vitamin A supplementation, deworming and insecticide-treated nets (ITNs) as the minimum package of services.

Strategy 8: Ensure effective and sustainable introduction of new vaccines and technologies- Ghana successfully introduced the Pentavalent vaccine (DPT-HepB-Hib) in 2002. A number of new vaccines are now available on the market. Two new vaccines will be introduced in 2011. These are the pneumococcal and rotavirus vaccines. In addition, second dose of measles will also be introduced in 2011.

Strategy 9: Strengthen AEFI surveillance and Integrate EPI surveillance into surveillance of other diseases (IDSR)

Surveillance systems for AFP, measles and MNT will be strengthened in the context of integrated disease surveillance together with surveillance for the new vaccines to be introduced. As part of IDSR, surveillance for VPDs will be strengthened especially at the community level using all available structures and possible innovations. Institutionalize AEFI surveillance will also be strengthened.

3.3 Components of immunization system in relation to programme objectives, regional and global goals

Major causes of problems identified include the following:

- Poor access to services in hard-to-reach districts and most urban centres
- Inadequate resources for regular outreach services to island and lake communities located in and around the Volta Basin. There are 17 districts located in the Volta Basin

with over 5,000 communities inhabited by a large number of people who are mainly farmers and fisher folk

- Inadequate health staff to provide services required. Attrition has been a major contributing factor with most of the field staff leaving for higher studies.
- Poor cold chain maintenance and injection safety practices
- Weak community involvement and initiatives
- Weak supervision from the higher levels to the service delivery points.
- Weak VPD surveillance in most regions.

Table 314: Components of the immunization system in relation to programme objectives, regional and global goals

DESCRIPTION OF PROBLEM OR NATIONAL PRIORITY	PROGRAMME OBJECTIVE	TARGETS AND MILESTONES	REGIONAL AND GLOBAL GOALS	Priority
<p>Service delivery</p> <p>Problem - Some districts still report OPV3 and DPT3 coverage less than 80%</p> <p>Problem- Poor utilization of EPI services (high drop-out rates) in some districts. In addition, some districts record negative drop-out rates</p> <p>Problem- Some districts recording TT2+ coverage less than 50% suggesting being at high risk of MNT</p> <p>National priority – All districts to achieve Penta 3 coverage of 80% and above every year.</p>	<p>To achieve at least 90 % of districts with 80% coverage for all antigens (using Penta3 as a proxy)</p>	<p>2010:</p> <ul style="list-style-type: none"> - DPT3/OPV3 coverage at 85% nationally with 80% districts above 80% coverage; - 50% districts with DOR <10% - 50% districts with measles coverage >90% <p>2011</p> <ul style="list-style-type: none"> - DPT3/OPV3 coverage at 85%; 80% districts with above 80% coverage; - 60% districts with DOR <10% - 60% districts with measles coverage >90% <p>2012</p> <ul style="list-style-type: none"> - DPT3/OPV3 coverage at 90%; 80% districts with above 80% coverage; - 70% districts with DOR <10% - 70% districts with measles coverage >90% - Quarterly supervision from national to regions and districts - Monthly supervisory visits from regional to lower levels <p>2012:</p> <ul style="list-style-type: none"> - DPT3/OPV3 coverage at 90%; 85% districts with above 80% coverage; - 75% districts with DOR <10%; - 70% of districts with TT2+ coverage above 80%; - 80% districts with measles coverage >90% <p>2014:</p> <ul style="list-style-type: none"> - DPT3/OPV3 coverage at 90%; -90% districts with above 80% DPT3/OPV3 coverage; - 90% districts with DOR <10% - 90% districts with measles coverage >90%. 	<p>By 2010 or sooner, all countries will have routine immunization coverage at 90% nationally with at least 80% coverage in every district (GIVS 2005)</p> <p>By 2009, at least 80% of countries will attain at least 80% DPT3 coverage in all districts (AFRO)</p> <p>Reduce child mortality by two-thirds between 1990 and 2015 (MDG4)</p> <p>By 2009, at least 80% of countries will attain a minimum of 80% TT2+ coverage among women of child bearing age</p>	<p>1</p>

DESCRIPTION OF PROBLEM OR NATIONAL PRIORITY	PROGRAMME OBJECTIVE	TARGETS AND MILESTONES	REGIONAL AND GLOBAL GOALS	Priority
<p>Logistics Problem-Inadequate inventory control system at all levels.</p> <p>Problem - Inadequate waste management practices at health facility level National priority – Construction of de Monfort incinerators in all districts and large health centres</p>	<p>To attain 100% safe disposal of used needles and syringes</p>	<p>2010 --Construct incinerators for waste management in selected districts</p> <p>2011 – 2012 Continue to construct incinerators in new districts</p>	<p>By 2009, all countries will adopt and implement technologies for safe disposal and destruction of injection materials and other sharps</p>	<p>2</p>
<p>Vaccine supply and quality Problem: Inadequate cold chain management Problems: Poor stock management of vaccines at district and facility levels</p> <p>National Priority: To ensure effective and efficient Cold Chain management at all levels</p>	<p>To maintain cold chain at appropriate temperatures at all levels To reduce vaccine wastage at all levels</p> <p>To avoid vaccine shortages at regional and lower levels</p>	<p>2010-2012: All EPI staff trained in cold chain and vaccine management Scale up wastage monitoring in all facilities Vaccine management assessment conducted Availability and implementation of the use of vaccine ledgers and tally cards at all facilities</p>	<p>By 2007, all countries will adopt the multi dose vial policy</p>	<p>2</p>
<p>Advocacy and communication Problem: Lack of EPI communication plans at all levels National Priority: To make Social Mobilization the driving force for EPI</p> <p>Problem: Inadequate IPC skills among health workers</p> <p>National Priority: To strengthen community participation</p>	<p>To revise the 2003/ 2005 national communication plan To ensure all districts have EPI communication integrated within the district plans</p> <p>To achieve at least 80% of districts with health workers who are trained in IPC.</p>	<p>2010: Organize social mobilization activities during campaigns including the use of local media</p> <p>2009- 2011: - National EPI communication plan updated - to train focal person within EPI programme - All districts with EPI communication integrated within district plans - 30% of health workers trained in IPC in 2009;30% in 2010; 40% in 2011 - 90% districts with IEC materials and using local media to promote routine EPI and campaigns;</p>		<p>3</p>

DESCRIPTION OF PROBLEM OR NATIONAL PRIORITY	PROGRAMME OBJECTIVE	TARGETS AND MILESTONES	REGIONAL AND GLOBAL GOALS	Priority
<p>Surveillance</p> <p>Problem Weak surveillance performance indicators (non polio AFP rate) at all levels</p> <p>National Priority: To improve on surveillance performance indicators (non polio AFP rate) at all levels</p>	To attain and maintain at least 80% of surveillance performance indicators for target Vaccine Preventable Diseases (VPDs) in all districts by 2011	<p>2010 -2014: 100% of districts with non-polio AFP rate of 2/100,0000 (2007 and beyond)</p> <ul style="list-style-type: none"> - At least 80% of all suspected cases of measles, yellow fever etc investigated - At least 60% of districts reporting on AEFI, including zero reporting - 	<p>By 2009, all countries will have established case based surveillance for all VPDs</p> <p>By 2009, all at-risk countries will have capacity for lab diagnosis of yellow fever</p>	1
<p>Programme Management</p> <p>A) Policy, Planning and Management</p> <p>Problem Inadequate partner coordination for routine vaccination at all levels</p> <p>National Priority: Improve partner coordination for routine vaccination at all levels</p>	To enhance partner coordination at all levels	2010-20134: To enhance partner coordination at all levels		3
<p>B) Monitoring and supervision</p> <p>Problem Irregular technical support supervision at all levels</p> <p>National priority</p>	To conduct supportive supervision at all levels on a quarterly basis and provide feedback on coverage, dropout rates and vaccine wastage	2010-2014: All regional hospitals implementing EPI/IDSR support supervision strategy		2
<p>Sustainable Financing</p> <p>Co financing of new vaccines</p>	To maintain the 100% GOG financing of traditional vaccine and also sustain GOG contribution to cost of new vaccines	2010 - GOG to contribute to cost of pneumococcal, rotavirus and measles vaccine as in the case of the pentavalent as documented in the FSP 2002	By 2009, countries will be contributing at least 30% of annual vaccines purchase costs	1

3.3. STRATEGIES, KEY ACTIVITIES AND TIMELINE (BY SYSTEM COMPONENTS)

Programme objective	Strategy	Key activities	Time line				
			2010	2011	2012	2013	2014
<p>Service delivery</p> <p>1. To achieve at least 90 % of districts with 80% coverage for all routine childhood antigens (using DPT3 as a measure)</p> <p>2. To achieve at least 90% of districts with a drop out rate of less than 10%.</p> <p>3. To achieve at least 80% of districts with 80% TT 2+ for pregnant women</p> <p>4. To promote integration of child survival activities within the minimum health care package</p>	<p>Infant vaccination</p> <ul style="list-style-type: none"> Build capacity at district level to implement RED/ REC strategies Strengthening delivery of outreaches with emphasis on integrated outreaches <p>Defaulter tracing</p> <ul style="list-style-type: none"> Drop out monitoring <p>Strengthen integration of ANC with TT immunization Nationwide introduction of school based TT immunization</p>	<ul style="list-style-type: none"> Conduct joint/ integrated micro planning with involvement of the community Provide and distribute relevant documents / charts for RED implementation. Carry out Pulse (mop-up) immunization in poorly performing sub counties in every district Conduct registration and defaulter tracing of target children Develop guidelines for micro planning/ mapping to ensure all ANC services provide TT immunization Work with RH to review strategies for improved ANC attendance Set up a coordinating committee with Ministry of Education & develop an implementation strategy for school based TT immunisation 	X	X	X	X	X
<p>Logistics</p> <p>1. To ensure availability of logistics data and information at all levels</p> <p>2. To strengthen the transport fleet for delivery of EPI services</p>	<ul style="list-style-type: none"> Establish an effective and efficient logistics management information system to maintain full supply of standard EPI commodities at all levels. To expand and maintain an efficient transport fleet for 	<ul style="list-style-type: none"> Design and implement the LMIS at all levels Conduct a comprehensive inventory for all EPI equipment at all levels Procure and maintain field vehicles, trucks, and motorcycles and bicycles inline with expanding administrative levels and transport replacement plan 	X	X	X	X	X

Programme objective	Strategy	Key activities	Time line				
			2010	2011	2012	2013	2014
3. To review and develop a new strategy for distribution of vaccines and supplies from national level to districts and within districts in view of decentralization	<ul style="list-style-type: none"> • EPI operations at national level • Establish a vaccine and supplies distribution system from central level to districts and within districts 	- Implement vaccine and supplies distribution system from central level to districts and within districts	X	X	X	X	X
		- Construct and expand storage space at the regional and district levels	X	X	X	X	X
		- Provide adequate safe injection related materials on a regular basis	X	X	X	X	X
4. To maintain universal usage of ADs for routine immunisation	<ul style="list-style-type: none"> • To maintain the bundling system strategy 	- Work with infrastructure to construct incinerators and disposal pits	X	X	X	X	X
5. To attain 100% safe disposal of used needles and syringes	<ul style="list-style-type: none"> • To collaborate with MOH infrastructure and clinical divisions, and partners to ensure adequate injection safety and waste management practices at all levels 						

Programme objective	Strategy	Key activities	Time line					
			2010	2011	2012	2013	2014	
Vaccine supply and quality								
1. To strengthen the existing national capacity for vaccine regulation and quality control	<ul style="list-style-type: none"> Collaborate with FDB to develop standard guidelines to ensure vaccine quality 	<ul style="list-style-type: none"> Work with FDB to build capacity for vaccine regulation Support FDB to conduct regular vaccine potency testing at the lower levels 	X	X	X	X		X
2. To ensure that 100% of static units have functional cold chain equipment (including newly established static units)	<ul style="list-style-type: none"> To establish a cold chain equipment inventory monitoring system 	<ul style="list-style-type: none"> Conduct physical inventory for all cold chain equipment countrywide Procure cold chain equipment, spare parts and workshop consumables Support central and district teams to carry out routine and timely maintenance and repair of equipment 	X					X
3. To develop and implement a cost effective cold chain energy utilization source.	<ul style="list-style-type: none"> To establish a cost effective cold chain energy source 	<ul style="list-style-type: none"> Forecast and procure adequate vaccines in a timely manner Timely delivery of EPI vaccines and other logistics at all levels 	X	X	X	X		X
4. To maintain zero tolerance of stock outs for all vaccines and related supplies	<ul style="list-style-type: none"> Build capacity for vaccine management at all levels 	<ul style="list-style-type: none"> Expand vaccine utilization monitoring for all antigens at all levels in all districts. Conduct vaccine management assessment in selected districts 		X	X	X		X
			X	X	X	X		X
Advocacy and communication								
1. To ensure all districts have EPI communication integrated within the district plans	<ul style="list-style-type: none"> Participate in annual district planning 	<ul style="list-style-type: none"> Attend annual regional planning workshops 	X	X	X	X		X
2. To achieve at least 80% of districts with health workers who are trained in IPC.	<ul style="list-style-type: none"> Capacity building for communication for EPI Institutionalize health worker - community dialogue meetings Communication for behavior 	<ul style="list-style-type: none"> Training of health workers in IPC Sensitization of parish mobilisers, Community Development Assistants, religious, cultural and civil societies in EPI 	X	X	X	X		X
			X	X	X	X		X

Programme objective	Strategy	Key activities	Time line				
			2010	2011	2012	2013	2014
3. To strengthen advocacy for EPI at all levels	<ul style="list-style-type: none"> change Involvement of religious and cultural leaders and civil societies in advocating for EPI Building partnerships with the media for EPI activities Enhance school involvement in EPI activities 	<ul style="list-style-type: none"> Development of IEC materials and messages Scale up Community Problem Solving and Strategy development Monitoring of communication activities at all levels and providing feedback Feedback meetings Orientation/sensitization of broadcasters, reporters and managers Develop guidelines on EPI for essay competition and drama in schools 	X	X	X	X	X
<u>Surveillance</u> 1. To attain and maintain at least 80% of surveillance performance indicators for VPDs in all districts	<ul style="list-style-type: none"> Provide focused support to districts to achieve/maintain AFP certification level indicators. Documentation of polio-free certification Capacity building for surveillance of EPI target diseases within the IDSR framework Monitor for action using reliable data 	<ul style="list-style-type: none"> Support surveillance activities (Field case search, specimen shipment and STOMP team missions) in districts. Support NCC, NPEC and NTF Support to the laboratory to maintain accreditation Training and sensitization of pre-service training tutors lecturers and in-service health workers in disease surveillance Print and disseminate relevant documents for surveillance of EPI target diseases 	X	X	X	X	X
Programme Management Policy, planning and management <ul style="list-style-type: none"> To disseminate the EPI policy To enhance partner coordination at district level Monitoring and supervision	<ul style="list-style-type: none"> To avail the EPI policy to all service points To strengthen partner coordination at district level Roll out PDA use for 	<ul style="list-style-type: none"> To finalize, print and distribute EPI policy to all service points To develop guidelines for partner coordination at district level (with planning dept) 	X	X			

Programme objective	Strategy	Key activities	Time line				
			2010	2011	2012	2013	2014
<ul style="list-style-type: none"> ▪ To conduct supportive supervision at district level on a quarterly basis and provide feedback on coverage, dropout rates and vaccine wastage <p>Operational research</p> <ul style="list-style-type: none"> ▪ To strengthen operational research capacity at national and district levels, and use of research findings 	<p>integrated supervision in the districts</p> <ul style="list-style-type: none"> • Use evidence-based decision making to improve programme performance • Expand regional surveillance system to all regional hospitals • Identify critical programme areas that require research • Advocate for development of research protocols • Resource mobilization for research • Publication of findings 	<ul style="list-style-type: none"> - Monitor district Performance and provide feedback - Quarterly technical support supervision to every district PDA - Initiate regional surveillance and monitoring at all regional hospitals - Development of research protocols by national and district personnel - Conduct operational research and disseminate findings 	X	X	X	X	X
			X	X	X	X	X
			X	X	X	X	X
<p>Strengthening human resource and institutional capacity</p> <ol style="list-style-type: none"> 1. To build capacity for pre and in-service health workers at national and district levels 2. To advocate for establishment of key EPI positions at national and district levels 	<p>Equip pre- and in-service health workers and mid-level managers with knowledge, skills and competencies in EPI service delivery.</p> <p>Dialogue with the relevant key stakeholders at MOH and Ministry of public Service</p>	<ul style="list-style-type: none"> - Review and update the EPI training manuals and reference materials - Work with the Ministry of Education to update the pre-service health-training curriculum. - Revise pre-service institution curriculum to include updates on EPI Training health tutors in EPI. - Conduct EPI MLM training. - Work with HRD to streamline/ mainstream EPI training with the MOH training policy - Determine key unfilled positions at national and district level, develop terms of reference and hold discussions with relevant stakeholders 	X	X			
			X	X			
			X	X			
			X	X	X	X	X
			X	X	X	X	X
				X			
Sustainable Financing	<ul style="list-style-type: none"> • Advocacy and continuous 	<ul style="list-style-type: none"> - Use evidence-based advocacy for 	X	X	X	X	X

Programme objective	Strategy	Key activities	Time line				
			2010	2011	2012	2013	2014
1. To increase GOU contribution for vaccines and operational costs (programme 9) to USD 0.40 per capita	lobbying with key GOU stakeholders for increasing government budget for the programme <ul style="list-style-type: none"> • Ensure regular, adequate and timely financial flows to the programme (Financial sustainability) 	resource mobilization from government and partners at national and district levels. <ul style="list-style-type: none"> - Explore and implement more efficient strategies. 	X	X	X	X	X
<i>Introduction of new vaccines and technologies</i> 1. To provide evidence-based information to support introduction of new vaccines 2. To document the impact of new vaccines	<ul style="list-style-type: none"> • Conduct operational research including burden of disease assessments • Initiate surveillance and reporting systems for the diseases targeted with the new vaccines. 	<ul style="list-style-type: none"> - Conduct disease burden assessment before introduction of pneumococcal vaccines - Establish a surveillance system for pneumonia disease 			X	X	X
<i>Accelerated disease control</i> 1. To achieve standard performance indicators for polio eradication 2. To attain measles elimination by 2010 3. To eliminate NNT by 2010	<ul style="list-style-type: none"> • Achieve and maintain high routine immunization coverage for OPV, measles and TT vaccines • Conduct supplemental immunization activities • Strengthen disease surveillance for AFP, measles and NNT 	<ul style="list-style-type: none"> - Implement nationwide under 5 campaigns for measles and polio integrated with other child survival interventions. - Evaluate measles control plan, 2002-2006 - Develop measles control plan 2007-2010 - Conduct national documentation of polio free status. - Conduct NNT risk assessment - Implement TT campaigns in high risk districts. - Introduce TT in lower primary schools to sustain elimination - Conduct LQA for MNT elimination 	X				

4 CHAPTER 4: COSTING, FINANCING AND FINANCING GAPS

4.1 Costing

4.1.1 Macroeconomic Analysis

The MoFEP projects the country's GDP to grow from \$730 per capita in 2008 to about \$1,320 per capita in 2014. Similarly total health expenditure per capita is expected to grow from \$43 to \$75 by 2014.

Table 15: Macroeconomic indicators

Macroeconomic Indicators	2008	2010	2011	2012	2013	2014
Per Capita GDP (\$)	\$730	\$919	\$1,050	\$1,150	\$1,250	\$1,320
Total Health Expenditures per capita (\$)	\$43	\$54	\$59	\$65	\$70	\$75
Population	23,532,654	24,943,759	25,657,207	26,393,551	27,153,588	27,938,146
GDP (\$)	\$17,178,837,697	\$22,923,314,329	\$26,940,067,116	\$30,352,583,324	\$33,941,985,255	\$36,878,353,090
Total Health Expenditures (\$)	\$1,011,904,138	\$1,346,962,975	\$1,513,775,200	\$1,715,580,797	\$1,900,751,174	\$2,095,360,971
Government Health Expenditures (\$)	\$121,428,497	\$202,044,446	\$272,479,536	\$343,116,159	\$475,187,794	\$628,608,291

Source: Budget statement 2007 (MoFEP)

4.1.2 Total Immunization Cost

The total cost of the National Immunisation programme for the five years is about \$211.8m. The cost of vaccines and injection safety will cost about \$124.5m representing 58.8% of total projected expenditure for the five years. Supplemental immunization for the five years is \$17.5m (8.3%) whilst health system cost represents 21.6%.

Table 16: Cost of immunization for the period 2010-2014

cMYP Component	Expenditures	Future Cost Projections					Total 2010 - 2014
	2008	2010	2011	2012	2013	2014	
	US\$	US\$	US\$	US\$	US\$	US\$	US\$
Vaccine Supply and Logistics	\$14,573,541	\$16,328,443	\$27,951,338	\$26,074,563	\$26,801,359	\$27,368,289	\$124,523,992
Service Delivery	\$3,758,324	\$3,869,939	\$3,947,338	\$4,026,284	\$4,098,406	\$4,180,374	\$20,122,341
Advocacy and Communication	\$0	\$153,000	\$156,060	\$159,181	\$108,243	\$110,408	\$686,892
Monitoring and Disease Surveillance	\$0	\$204,000	\$208,080	\$212,242	\$270,608	\$331,224	\$1,226,154
Programme Management	\$0	\$453,900	\$364,140	\$371,423	\$487,094	\$386,428	\$2,062,986
Supplemental Immunization Activities	\$2,030,536	\$3,219,902	\$6,761,128	\$1,980,240	\$1,983,368	\$3,542,236	\$17,486,874
Shared Health Systems Costs	\$8,608,113	\$8,780,276	\$8,955,881	\$9,134,999	\$9,317,699	\$9,504,053	\$45,692,907
GRAND TOTAL	\$28,970,515	\$33,009,460	\$48,343,965	\$41,958,931	\$43,066,777	\$45,423,012	\$211,802,146

4.1.3 Routine Immunization

Total routine immunization cost for vaccines and injection safety for the five years is \$100.5m. The cost of new vaccines and injection safety from 2011 to 2014 is \$31.9m representing 15.5% of total cost of vaccines for routine immunization. The cost of injection safety for the introduction of the new vaccines over the period 2011-2014 is about \$5.3m representing 2.6% of total recurrent cost of routine immunization.

Table 17: Cost of routine immunization

	Expenditures	Future Resource Requirements					
Cost Category	2008	2010	2011	2012	2013	2014	Total 2010 - 2014
Routine Recurrent Costs	US\$	US\$	US\$	US\$	US\$	US\$	US\$
Vaccines (routine vaccines only)	\$13,321,720	\$12,751,499	\$22,453,145	\$21,192,501	\$21,763,088	\$22,353,362	\$100,513,595
Traditional	\$2,490,539	\$1,449,644	\$1,838,496	\$1,819,466	\$1,868,449	\$1,918,655	\$8,894,710
Underused	\$10,831,181	\$11,301,855	\$11,627,149	\$11,940,535	\$12,262,139	\$12,594,707	\$59,726,385
New	0	0	\$8,987,500	\$7,432,500	\$7,632,500	\$7,840,000	\$31,892,500
Injection supplies	\$1,191,770	\$723,013	\$1,153,848	\$1,102,276	\$1,133,208	\$1,163,723	\$5,276,068
Total routine Recurrent (Vaccines & Injection Supplies)	\$27,835,210	\$26,226,011	\$46,060,138	\$43,887,278	\$44,659,394	\$45,870,447	\$206,303,258

Cost of traditional vaccines for the period is about \$8.9m representing 4.3% of total cost of routine vaccines and injection supplies over the five year period. Underused vaccines represent 29% costing \$59.7m.

4.1.4 Supplemental Immunization

Polio vaccines will be administered to children under-five years during the Integrated Maternal and Child Health campaign to be held in 2009 through to 2014. The cost of supplemental immunization campaign over the five year period is \$17.5m. Measles campaign will take place in 2010 and 2014 whilst Yellow Fever campaign is scheduled to take place in 2011.

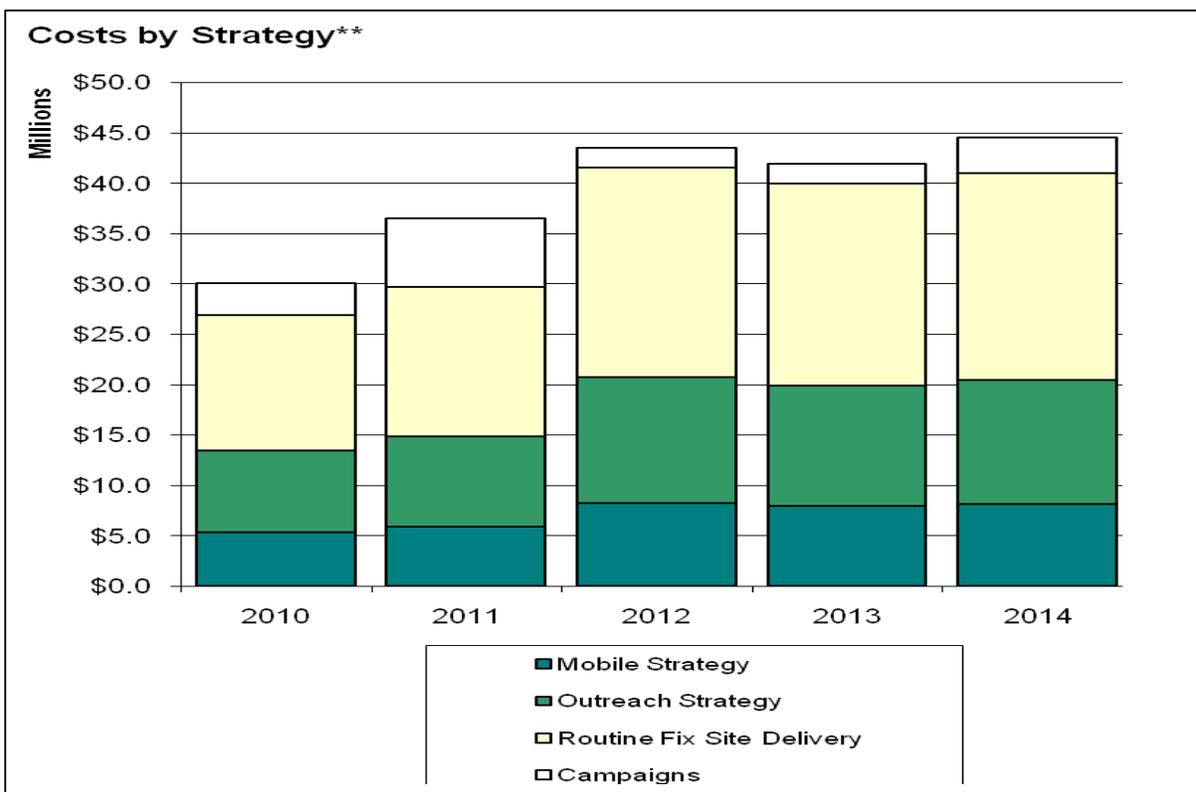
Table 18: Cost of Campaigns

	Expenditures	Future Resource Requirements					
Cost Category	2008	2010	2011	2012	2013	2014	Total 2010 - 2014
Campaign Costs	\$2,030,536	\$3,219,902	\$6,761,128	\$1,980,240	\$1,983,368	\$3,542,236	\$17,486,874
Ex: Polio (Specify Campaign in Table 1.0)	\$2,030,536	\$1,887,896	\$1,933,456	\$1,980,240	\$1,983,368	\$2,077,616	\$9,862,576
Vaccines and Injection Supplies	\$2,030,536	\$1,887,896	\$1,933,456	\$1,980,240	\$1,983,368	\$2,077,616	\$9,862,576
Operational costs							
Ex: Measles (Specify Campaign in Table 1.0)		\$1,332,006				\$1,464,620	\$2,796,626
Vaccines and Injection Supplies		\$1,332,006				\$1,464,620	\$2,796,626
Operational costs							
Yellow Fever			\$4,827,672				\$4,827,672
Vaccines and Injection Supplies			\$4,827,672				\$4,827,672

4.1.5 Cost by Strategy

Ghana will continue to use routine immunization as the main delivery strategy for immunization. This will be supplemented by outreach and mobile strategy. Supplemental campaigns will be used when necessary.

Figure 5: Cost of each immunization strategy



4.2 Financing and Financial Sustainability Strategies

Traditionally the health sector has been financed from three major sources namely;

- Government of Ghana
- Household or Internally Generated Funds and
- Donor funds (Pooled and earmarked including funding from multilateral, bilateral, UN, and Global Health Initiatives)

Currently the focus on the donor pull funding has shifted to sector budget support whilst the IGF which was over 90% cash and carry has now moved to prepayment system through the implementation of the National Health Insurance Scheme (NHIS). Some Development Partners (DPs) and International Health Initiatives (e.g. Global Fund, GAVI) continue to support the sector through earmarking and health systems strengthening.

Government of Ghana

The Government of Ghana through the Ministry of Financing has been the main source of funding to the public health sector. Government funding comes from tax revenues and covers

all the four areas of public expenditure (personal emoluments, administrative expenses, service expenses and investment expenses). Almost all public sector workers are government employees and are paid using government funds to the sector. Currently salaries and allowances account for over 60% of total public health expenditure. The salaries and allowances of all NIP staff are paid by government. Salaries are therefore secured for the future as the Government of Ghana is committed to pay the salaries of its staff.

Government budget for administration and service expenditures are allocated to decentralized cost centres to be implemented according to their approved plans. Most of the district plans covers outreach, supervision, training and monitoring. Major investment expenditure and procurement items such as vaccines, cold chain equipment are budgeted and procured centrally at the national levels. Plans and budgets are developed in their Medium Term Expenditure Framework (MTEF) plans.

4.2.1 Internally Generated Funds

All public health facilities in Ghana generate revenue from the sale of services. Though the income generated is part of government revenue, all the IGF (100%) are retained by the health facilities. Currently health facilities accredited by the National Health Insurance Authority (NHIA) are reimbursed for services to their clients. These funds are used to support government budgetary allocations in all the four expenditure areas but with limitations on the proportions that can be used for salaries and investment expenditure. Plans and budgets are developed in their Medium Term Expenditure Framework (MTEF) plans.

4.2.2 Donor Earmark Funds

These are funds from DPS and IHI that are used to support specific programmes and projects. These are planned according to the programmes approved in their medium term plans. This may or may not be consistent with the MTEF period and therefore information may not be available at the time of developing the annual Programme of Work.

4.3 Financing Strategies:

4.3.1 Mobilizing Additional Resources

The sector will explore the many opportunities available with the international community. The Global Fund for HIV/AIDS, TB and Malaria and the Global Alliance for Vaccines and Immunizations (GAVI) has been supporting health systems strengthening initiatives through rounds of applications. There are other partners who are working increase the use of new vaccines and technologies to improve Vaccine preventable diseases (VPDs). The Ministry of Health will continue to explore these opportunities to mobilize resources in all the five system components. There will be strong advocacy with strong evidence of the successes of the NIP to the Government of Ghana through the Ministry of Finance to increase funding to the health sector. The sector will also work with the Local Government structures through the District health Administrations for support from the District Assemblies. Specific efforts will be made to support districts in advocacy with the Assemblies.

4.3.2 Increase the Reliability of Funding

The government of Ghana is committed to the immunization programme and has shown its commitment to its funding. The Government through the Ministry of Finance will be encouraged to improve on the reliability of its funding through timely disbursement of

funds to the district levels. The Ministry of Health as a policy is increasing resources to the sub-national level, specifically to the community level. This will increase resource availability at this level and ensure that funds will be available when required to deliver primary care including immunization work.

4.4 Resource Requirement & Financing Gaps

The total resource secured is \$177.3m. The Government of Ghana has secured its contribution to vaccines and injection safety and other cost to a minimum of \$92m. GAVI support for vaccines and injection safety supplies over the five year period amounts to about \$83m of the \$211.8m required over the five year period, \$34.5m remains unsecured as at the end of 2009.

Table 19: Immunization financing and financing gaps

Resource Requirements, Financing and Gaps*	2010	2011	2012	2013	2014	Avg. 2010 - 2014
Total Secured Financing	\$30,261,963	\$37,363,796	\$36,105,344	\$36,312,400	\$37,203,858	\$177,247,360
Government	\$19,030,620	\$17,813,422	\$17,904,384	\$18,220,921	\$18,994,510	\$91,963,857
Sub-national Gov.	\$430,796	\$110,089	\$584,935		\$2,346	\$1,128,165
Gov. Co-Financing of GAVI Vaccine	\$10,329,590	\$18,732,762	\$17,616,025	\$18,091,479	\$18,207,001	\$82,976,857
WHO	\$200,000	\$50,000				\$250,000
UNICEF	\$153,000	\$65,000				\$218,000
JICA						
USAID						
ROTARY						
GOVERNMENT OF JAPAN						
GLOBAL FUND						
GAVI HSS	\$117,957	\$592,524				\$710,481
GAVI ISS						
GSK						
Funding Gap (with secured funds only)	\$2,747,497	\$10,980,169	\$5,853,588	\$6,754,377	\$8,219,155	\$34,554,785
% of Total Needs	8%	23%	14%	16%	18%	16%

Funding beyond 2012 is not very certain especially from the Development Partners. Most of their commitments are therefore probable and not secured. Funding levels will be reviewed annually when information becomes available. Most of the probable funding will be secured as the years get closer. However Government commitment to salaries and vaccines remain secure throughout the period.

Table 20: Funding gaps for secured and probable funds

Resource Requirements, Financing and Gaps*	2010	2011	2012	2013	2014	Avg. 2010 - 2014
Total Probable Financing	\$1,624,006	\$8,050,277	\$3,060,240	\$4,219,963	\$2,265,741	\$19,220,227
Government	\$1,332,006	\$6,685,277	\$2,980,240	\$4,149,963	\$2,147,741	\$17,295,227
Sub-national Gov.	\$35,000	\$40,000	\$80,000	\$70,000	\$118,000	\$343,000
Gov. Co-Financing of GAVI Vaccine						
WHO	\$40,000	\$635,000				\$675,000
UNICEF	\$20,000	\$50,000				\$70,000
JICA	\$50,000	\$90,000				\$140,000
USAID						
ROTARY	\$147,000	\$500,000				\$647,000
GOVERNMENT OF JAPAN		\$50,000				\$50,000
GLOBAL FUND						
GAVI HSS						
GAVI ISS						
GSK						
Funding Gap (with secured & probable funds)	\$1,123,491	\$2,929,892	\$2,793,348	\$2,534,414	\$5,953,414	\$15,334,558
% of Total Needs	3%	6%	7%	6%	13%	7%

5 CHAPTER 5 - Monitoring & Evaluation

The cMYP provides a comprehensive overview of the NIP and is the document to provide direction guidance to national and sub-national levels for incorporation into their annual plans. It is also the documents that will advice national policies in setting national targets for all immunization indicators. National performance will therefore be monitored based on the indicators set in the cMYP. The cMYP contain a set of programme and financial indicators. These indicators will be monitored and feedback provided to policy and programme managers. Monitoring of the cMYP will be done within the existing health sector monitoring and reporting framework.

The MoH, it's Agencies and Development Partners have agreed to a set of national indicators for monitoring the sector and it includes indicators for monitoring the health of the population at both governmental and international levels. Data for measuring these indicators are collected routinely and supplemented with periodic reviews and surveys. The MoH routine reprocess orts are collated from sub-national levels to national level. An annual review process is conducted and ends with a health summit attended by all stakeholders in health. During the health summit the report of an external review of the sector is presented and discussed. Surveys such as the Maternal Mortality Surveys (MMS), Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) are conducted periodically to provide information on the health. Routine monitoring is carried out periodically from national to sub-national levels to monitor the implementation of programmes and plans.

The NIP will also be assessed by the NIP through monthly and quarterly reports from the district levels. With the development of the cMYP, an annual NIP review will be instituted as a forum for bringing together all relevant stakeholders within the private and public sector including civil society organizations and NGOs. This review meeting is intended to allow for greater participation of district level non state sector organizations in information sharing and consensus building.

In addition, a mid and end term evaluation will be organized specifically for the NIP to evaluate progress and performance in the implementation of the contribute to the performance analysis of the sector and more specifically provide direction on future investments in the NIP.

5.1 Indicators for monitoring the cMYP

5.1.1 Macroeconomic Indicators

The NIP has been and continues to be one of the health programmes with high government commitment. The government of Ghana is committed to ensuring that new and underused vaccines are available to the population for the prevention of all forms of diseases. Total government commitment also translates into its budget allocation to the health sector. Key indicators for measuring government commitments to health and to the NIP will be assessed through a set of macroeconomic indicators.

5.1.2 Financial Indicators

The NIP will also pay close attention to monitor financial indicators within the cMYP.

5.1.3 Programme Indicators

The NIP will continue to monitor and report on the coverage of all antigens through the routine reporting system. The cMYP provides targets for coverage and wastage rates for routine immunization.

5.2 Surveillance System

The NIP will work with the Surveillance Department to monitor closely the introduction of two new vaccines in 2011. This will include post introduction monitoring activities. A set of monitoring indicators will be used to monitor post implementation activities.

2010 Annual Work plan

Key activities	Delivery Point	MONTH												Responsibility	Costs US\$	Funds available		Shortfall
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			Govt	Partners	
		Annual EPI Review with regions	National															
2009 Annual report															5,000.00	5,000.00		-
Consolidate 2010 plan															1,000.00	1,000.00		-
EPI managers meeting in Ouagadougou															5,000.00		5,000.00	-
RED orientation for regions															50,000.00		50,000.00	-
ICC Quarterly meetings on new vaccines, measles SIA etc	National													2,000.00	2,000.00		-	
Development IEC material														50,000.00			50,000.00	
Printing of materials														100,000.00			100,000.00	
Distribution of materials	National and regional													5,000.00			5,000.00	
TV/Radio programmes on new vaccines and measles SIA	Regins and districts													2,000.00	2,000.00		-	
Update Cold chain inventory														10,000.00		10,000.00	-	
Install new cold chain equipment	Regins and districts													50,000.00		50,000.00	-	
Train staff in use of equipment	Regins and districts													20,000.00			20,000.00	
Order new vaccines for introduction	National																-	
Distribute vaccines to regions	National													5,000.00	5,000.00		-	
Review of recording tools	National													10,000.00			10,000.00	
Print new tools and distribute														100,000.00			100,000.00	
Train staff on new tools	All levels													20,000.00			20,000.00	
Child health promotion week	All levels													50,000.00	50,000.00		-	
Press briefing and national launch of measles campaign														6,000.00	6,000.00		-	
Mass Measles SIA														4,000,000.00			4,000,000.00	
Press briefing and national launch of new vaccines	National													10,000.00	10,000.00		-	
Construction of incinerators in new districts	New districts													50,000.00		50,000.00	-	
Monitor waste management	Districts													10,000.00			10,000.00	
Establish sentinel sites for pneumo	Regions													100,000.00			100,000.00	
Fianlize surveillance plan for new vaccines	National													60,000.00			60,000.00	
Monthly VPD Data meetings	National													5,000.00		5,000.00	-	

EPI-GHANA/WHO/UNICEF