REPUBLIC OF RWANDA

MINISTRY OF HEALTH
EXPANDED PROGRAM ON IMMUNIZATION

COMPREHENSIVE MULTI-YEAR PLAN
2011-2015

April 2011

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ACRONYMS

AD	Auto Destruct syringes
AEFI	Adverse Effects Following Immunization
AFP	Acute Flacid Paralysis
BCG	Bacille Calmette Guerin (vaccine against tuberculosis)
BCC	Behavior Communication Changes
CHU	Centre Hospitalier Universitaire
cMYP	Comprehensive Multi Year Plan
CSF	Cerebro Spinal Fluid
DPT-HepB+Hib (Penta)	Vaccine against Diphtheria, Pertussis, Tetanus, Hepatitis B and Haemophilus influezae b
EPI	Expanded Program on Immunization
GAVI	Global Alliance for Vaccine and Immunization
GDP	Gross Domestic Products
GIVS	Global Immunization Vision and Strategy
ICC	Interagency Coordination Committee
ITN	Integrated treated bed Net
MDVP	Multi Dose Vial Policy
MLM	Mid-Level Management course
MNT	Maternal Neonatal Tetanus
MOH	Ministry Of Health
NGO	Non Governmental Organization
NNT	Neo Natal Tetanus
NRA	National Regulatory Authority
OPV	Oral Polio Vaccine
OR	Operational Research
PCV-7	Pneumococcal Conjugate Vaccine – Seven valent
RED	Reaching Every District
RGPH	Report of General Population and Habitat
SIA	Supplementary Immunization Activities
TT	Toxoid Tetanus (vaccine)
UNICEF	United Nations Children's Funds
USAID	United States Agency for International Development
VVM	Vaccine Vial Monitor
WHO	World Health Organization
WPV	Wild Polio Virus

I. INTRODUCTION

1.1 Geopolitical Background Information

Rwanda is situated in central Africa, south of the Equator, between 1°4' and 2°51' latitude South and 28°53' longitude East. With a surface area of 26,338 square kilometers, it is bordered to the North by Uganda, to the South by Burundi, to the West by the Democratic Republic of Congo, and to the East by Tanzania. Lacking access to the sea, Rwanda is land-locked and is located, as the crow flies, 1200 km from the Indian Ocean and 2000 km from the Atlantic Ocean. Its topography is mountainous and the average altitude is 1700 meters.

In terms of climate, Rwanda enjoys a subtropical climate that is tempered by altitude. The mean temperature is approximately 18.5° C and the annual rainfall averages 1200 mm. The year is divided into two rainy seasons of unequal length that alternate with a short and long dry season.

Administratively, Rwanda is divided into four provinces plus the city of Kigali, 30 districts, and 426 health units. The smallest administrative unit is the cell.

1.2 Socio-demographic data

According to the report from the general census of the population and habitat (RGPH), conducted in 2002, the population of Rwanda at that time was estimated to 8,128,553 inhabitants. Taking into account the national population growth rate of 2.6%, the population of Rwanda was estimated to 9,981, 415 inhabitants in 2010. Projection for 2011 estimated the same population to be 10,240,932 inhabitants. The census data in 2002 indicated that 52% of the population was female population and 48% of the population was male (approximately 91.5 men for every 100 women).
The majority of Rwandan populations live in rural settings (83.3%). In terms of urbanization, Rwanda has one of the least urbanized populations in Africa. However, the census figures showed that the urban population has grown rapidly, increasing from 5.5% to 16.7% of the total population from 1991 to 2002.

1.3 Organization of health system

The health system in Rwanda is organized as a three-level pyramid consisting of the central, intermediate, and peripheral levels. The central level includes the directorates of the Ministry of Health and the national reference hospitals. The intermediate level is represented by health districts and the primary reference district hospitals. The peripheral level is represented by the health centres which provide primary health care to the population within the health catchment area.

The central level, based in the capital city, is essentially responsible for the development of health policy and norms; it is also in charge of establishing strategies and guidelines that are provided to health services. Its role is also to conduct monitoring and evaluation of the health situation, as well as to coordinate resources at the national level.

The intermediate level helps the health centres to implement health policy and norms developed at central level. It trains and supervises health workers at the health centres, collects health data and analyses and sends feedback. The health district is responsible for managing all health problems for a well-defined population

The peripheral level is the operational unit represented by the health centers and takes care of a defined population in a given health catchment area. Health centers' staff works with representatives from the community, plans and provides primary health cares to the population. Rwanda currently has 30 health districts and about 426 health facilities.

At district level, decision-making process is carried out in a collegial manner, by way of multiple committees. The management structures at district level include the district health committee, the hospital health committee, and the health committee of each health centre. The composition, role, and authorities of these different committees are well defined.

In order to assure the best client care possible, a tiered referral system consisting of three levels is in place, based on required technical competences and rational utilization of resources.

1.4 EPI Organization and functionality

The overall goal of the national EPI is to contribute to the improved well-being of the Rwandan people through reduction of child morbidity and mortality due to vaccine-preventable diseases. Created in 1978, EPI in Rwanda became operational in 1980. It is comprised of three principal components: routine vaccination, supplemental immunization activities, and surveillance for target diseases.

Since 1996, EPI has had a functioning Interagency Coordinating Committee (ICC). This group includes senior officials from the Ministry of Health, representatives from different funding partners (WHO, UNICEF, USAID, etc.), and other parties interested in participating in this committee. The ICC remains open to new members who have interest in joining it. The ICC for immunization is active and, above all, plays a technical and advocacy role in support of the program. ICC meetings are regularly held and their proceedings are approved through formal written minutes.

The EPI works in close collaboration with other divisions and programs of the Ministry of Health, as well as with health districts. The program also maintains partnerships with different ministries, seeking their engagement in social mobilization, especially for national or local vaccination campaigns. At the community level, the program supports a network of community volunteers called "Agents de Santé Communautaires", whose assistance is increasingly relied upon, particularly in the areas of community sensitization and reduction of immunization drop-out rates.

Immunization services are completely integrated into routine activities within health facilities. Routine immunization is intended to reach infants 0-11 months of age and pregnant women, during the antenatal care visits, according to the following immunization schedule:

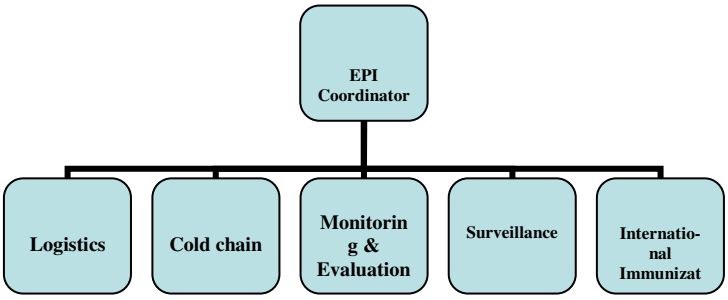
Table 01: Current EPI immunization schedule

Currently Available Vaccines		
Vaccine	**Total doses**	**Age and interval**
BCG	1	Birth
OPV	4	Birth, 6, 10, 14 weeks
DTP or DTP-HepB-Hib	3	6, 10, 14 weeks
Measles	1	9 months
TT (pregnant women)	2	During pregnancy
Pneumococcal Conjugate Vaccine	3	6, 10, 14 weeks

Since January 2002, the vaccination schedule has been expanded to include the pentavalent vaccine (DTP-HepB+Hib) at the same time with polio vaccine. In April 2009, a new vaccine, pneumococcal conjugate vaccine, (PCV7), in prefilled glass syringes, was introduced to the National Immunization Program. The Program plans to switch from DTP-HepB+Hib (liquid-lyophilized) to DTP-HepB-Hib (liquid) in 2011 and from PCV7 to PCV13 in 2011.

The Rwandan national EPI comprises a very small team of 11 staff. The program is leaded by an EPI Coordinator who is, at the same time, the Coordinator of the Maternal and Child Health Program. The remaining of the team is represented by one (1) Data manager & Monitoring Officer, two (2) Surveillance officers and two (2) Logisticians, one (1) responsible of "international vaccination" mainly for yellow fever vaccine, one (1) driver, two (2) messengers and one (1) cleaner. The organizational chart for the program (technical staff only) is shown in the figure bellow.

Figure 01: Organogram Chart, EPI program, Rwanda, 2010



II. EPI SITUATION ANALYSIS

The present EPI situation analysis takes into consideration the following components: Service delivery, Vaccine supply and quality, Cold chain & Logistics, Surveillance, Communication / social mobilization, Management, Capacity building and Finance.

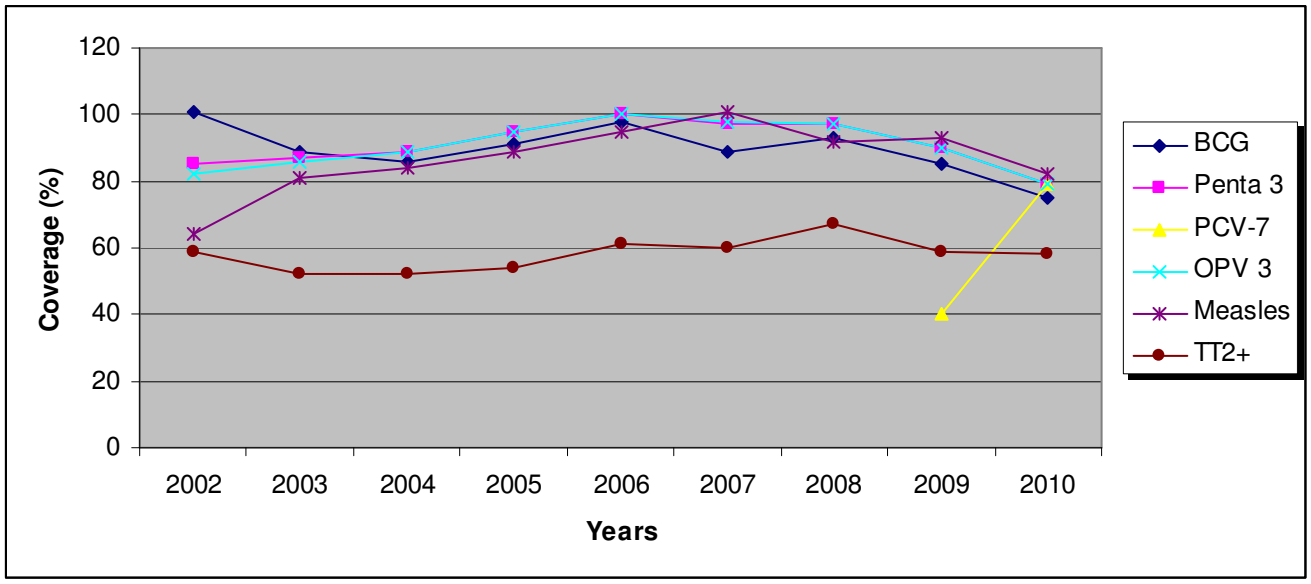
2.1. Service Delivery

Immunization activities remain part of the minimum package of interventions which are integrated within a health facility. In order to reach the high proportion of target population, national EPI uses the following strategies: integration of immunization services at fixed health centres, combination of several approaches to reach the unreached in health catchment's areas especially in the hard to reach areas. However, more than 90% of Rwandan's children are immunized at the fixed immunization sites[1]. The outreach strategy has been revitalized in most of health facilities, using financial support made possible through Government and GAVI Alliance. Since 2005, RED approach was introduced in all health districts. In 2007, ITN distribution and vitamin A supplementation were integrated with immunization services at heath centres. In 2005, PBF, which includes an overall of about 24 health indicators, among which the one targeting fully immunized children was, introduced at the health centre and community health worker levels.

The following tables and graphs show the trends of immunization indicators in the country.

2.1.1. Vaccination coverage data

Graph 01: Routine immunization coverage by antigen, Rwanda, 2002-2010



Source: Administrative data, national EPI Rwanda, 2010

[1]National Immunization Coverage Survey, 2007

According to the graph above, the immunization coverage for almost all antigens increased and was maintained at a very higher level (except for TT2+) from 2002 to 2007. From 2008, however, coverage started to decline while the surveillance indicators (except for the measles) continued to be good (no wild poliovirus case detected, no MNT case detected). Given this situation, in August 2010, a joint team from the Ministry of health and WHO conducted a survey in 4 districts with the very low level of immunization coverage. Findings from this survey showed the following results:

a) The proportion of under one year children was 2.6% (survey) instead of 4.1% as reported by health management information system (HMIS);
b) The number of children < 1 years old was 31 588 (survey) compared to 53 336 estimates used by HMIS ;
c) Pentavalent 3 coverage was 100% (survey) compared to 66% as reported by HMIS.

Conclusion from this survey showed that the denominator used to calculate administrative coverage data was over estimated (4.1% as estimated by projection from the 2002 census, around 9 years after). The low proportion of children < 1 year of age (2.6% of the total population) is probably the result of the improvement of Family Planning coverage by use of contraceptive methods which passed from 5% in 2002 to 51% in 2010.

For TT2+, the problem may be related to the fact that the recording system does not permit the health workers to record appropriately doses as TT3 or TT4 or TT5. It would be important to look more in detail into the recording system for TT vaccine doses.

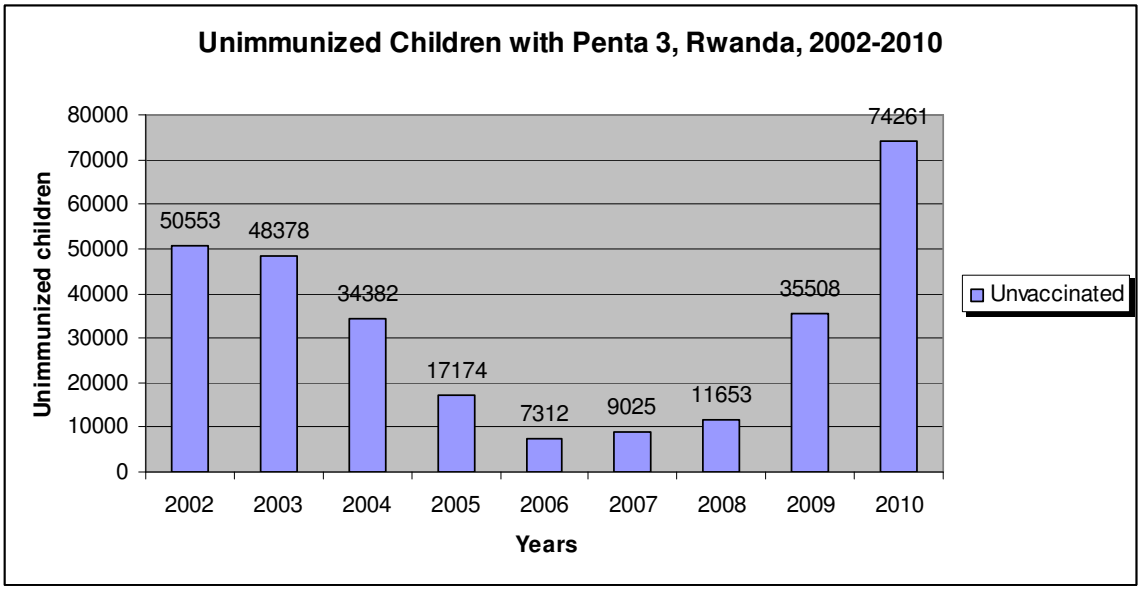
The PCV7 vaccine was introduced late in April 2009 by provincial phased approach; in addition, it took about 4 months, from April to August 2009, to cover the entire country. The proportion of the annual cohort infants (< 1 year of age) who received PCV7-1 and PCV7-3 in 2009 was respectively 54.4% and 40.2%. Drop-out pneumo1-3, which started at 71% in June 2009, declined rapidly to reach the level of 1.4%. In 2010, however, PCV-7 coverage increased and reached the same level as for Penta 3.

Table 03: District performance, Rwanda, 2008-2010

District performances	Number of districts		
	2008	2009	2010
Penta 3 < 50%	0	0	0
Penta 3 ≥50% <80%	1	5	26
Penta3 ≥80%	29	25	4

In addition, Rwandan EPI started to report high number of children who failed to receive 3rd dose of Pentavalent vaccine. The number of unimmunized children which declined from 2002 to 2006, started to increase again from 2007 to 2010 as shown on the following graph.

As response to these findings, the EPI program has started to intensify supervision activities in the hard-to-reach areas trying to work with health workers and the members of the community to identify the hard-to-reach children and immunize them. Unfortunately, these efforts did not have impact on the coverage. Problem may be related to the unknown denominator.



2.1.2. Drop-outs (D.O.)

Table 04: Penta1-Penta 3 drop-out rate trends by year, Rwanda, 2002-2010

D.O. rates	2002	2003	2004	2005	2006	2007	2008	2009	2010
Penta1-Penta3	12%	1%	4,3%	1%	4%	1.4%	5.4%	0.2%	-0,9%
% districts with D.O. < 10%	56,4%	92,3%	89,7%	100%	100%	100%	100	100%	**100%**
% districts with D.O. > 10%	43,6%	7,7%	10,3%	0%	0%	0%	0%	0%	**0%**

Source: EPI data base, 2009

All districts are well performing in respect to this indicator (100% of them with drop-out (D.O.) rate less than 10%).

2.1.3. Supplemental immunization activities (SIAs)

In 2003, 2006 and 2009, measles SIA and integrated campaign (measles, vitamin A, mebendazole and ITN distribution) were conducted and reached respectively high proportion of children as shown in the table 06 below.

Table 05: Integrated measles campaign, Rwanda, 2003, 2006 and 2010

Interventions	Coverage		
	2003	2006	2009
Measles campaigns	97%		
Integrated campaign			
• Measles SIA	101%	107%	101%
• Vitamin A suppl.		109%	106%
• Deworming		108%	115%
• ITN distribution		101%	

High proportion of children was reached with measles catch-up campaign in 2003 (97%). Again, for the measles follow-up campaign and other interventions – vitamin A supplementation and deworming conducted in 2006 and 2009, the coverage exceeded the 100% (probably due to the unknown denominator).

2.2. Vaccine supply and quality

Traditional vaccines are purchased by the Government through UNICEF channel on basis of annual forecast estimates. Pentavalent vaccine (under-used vaccine introduced in 2002) is co-financed between Government and GAVI Alliance.

First shipment of pneumococcal conjugate vaccine (PCV7), in pre-filled glass syringes, was donated to Rwanda by the manufacturer (Wyeth) in 2009. In August 2010, the country received a new shipment of PCV7 vaccine in single-dose vials. The switch from the glass pre-filled syringes to vial presentation reduced the overall needed storage capacity at all levels and stopped the use of high temperature incinerator to dispose the glass syringes. However, it required additional technical preparation, for the program, to switch the two presentations (training of health workers): vial presentation with VVM, which uses AD-syringes, will no more require a special safety boxes for disposal and will be incinerated at the health facility level.

Vaccines are supplied to the national Program twice a year. Once every month, each health district comes at the central level and collects vaccines upon its request and gets the required amount. In case of emergency, national level distributes the needed amount of vaccines to the identified health districts using the EPI cold chain truck. Health centers, on their side, collect vaccines from the health district cold store.

At the national level, the NRA is not operational (exists but not well equipped) to assure vaccine security.

Table 06: Vaccine supply and distribution, Rwanda, 2009

Vaccines	Stock on Jan 1st 2009	# doses received in 2009	Total stock in 2009	Distributed in 2009	Stock on Dec 31, 2009	% distributed in 2009	% in stock end 2009
BCG	620000	400000	1020000	683200	336800	66.9	33
OPV	1529500	1176200	2705700	1271250	14344450	46.9	53
DPT-HepB+Hib	80100	862400	942500	889500	53000	94.3	5.6
PCV7[2]	680000	720900	1400500	896150	504750	63.9	36
Measles	544000	150000	694000	362600	331400	52.2	47.7
TT	709000	0	709000	400000	309000	56.4	43.5

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Source: National cold store, Rwanda, 2010

Looking at this table, except for pentavalent vaccine where 94% of available doses were distributed during the year, for other vaccines, only little proportion of doses was distributed in 2010 (ranging from 46.9% to 66.9%). This situation might have a link with the fact that more vaccines were ordered; for this reason, vaccine forecasting approach might have played a negative role for vaccine management process (inappropriate vaccine wastage rates used, unknown target population used or inappropriate distribution approach used in the country). EPI team related the situation to the vaccine cycle shipment within the country (i.e. some vaccines were received in November-December and increased their stock level during the evaluation period).

Cold chain equipments at central level (cold rooms) do not have automatic temperature recorders. Temperatures are being monitored manually, twice a day and during the weekend and holidays. At district and health facility levels, temperatures are monitored by health workers, twice a day, unfortunately temperatures data are not analyzed. Most often, icepack are not conditioned before distribution of liquid vaccines at the lower level.

2.3. Cold chain and Logistics

Under this section, cold chain situation and logistics are described. Findings from 2007 cold chain and logistics assessment were revised in 2010. Cold chain equipment inventory and storage capacity by level were updated, wastage management, transport and maintenance were analyzed.

2.3.1. Cold chain and dry stock room

From October 13-26, 2007, WHO Consultant and the MOH/EPI staff conducted a cold chain & logistics assessment (VMA and Rapid Assessment Tool were used) and identified the gaps for a new vaccine introduction (PVV7). In order to accommodate the PCV7 vaccine, MOH and one of its partners (USAID) procured additional cold chain

[2] First lot received in February 2009

equipments for all levels. Despite the fact that the existing storage capacity for current vaccines was sufficient, one additional Walk-In-Cold Room of 15m3 was purchased and installed bringing the total up to 4 cold rooms – 3 positive and 1 negative – and hundreds of refrigerators, cold boxes vaccine carriers and spare parts were purchased and distributed to district hospitals and health centres.

The Rwandan's EPI doesn't have regional cold store for vaccines. All vaccines are directly collected from national cold store and stored at district hospital cold stores. Each district hospital received additional cold chain equipment.

In 2010, for the preparation of the rotavirus and HPV vaccines introduction (in 2012 and 2011 respectively), cold chain and transport equipment inventory were updated by the local team. The revised cold chain information was analyzed using the WHO Logistics Forecasting Tool and estimated the additional storage capacity needed for rotavirus and HPV vaccine accommodation. Findings have shown the following:

a) At central level, there was no additional cold chain equipment required to accommodate HPV and rotavirus vaccine.
b) At the district level (district hospitals), however, additional need for storage capacity was identified, in order to accommodate both HPV and rotavirus vaccines in 2011 and 2012 respectively. In total, about 87 refrigerators (TCW 1152) are needed, of which 9 will need to be supplied in 2011 and the remaining in 2012.
c) At health facility level, of the 426 health centers with immunization activities, 11 need 2 refrigerators each and in 109.health centers, one refrigerator each (V170 EK) in order to accommodate both vaccines.

About 40 cold boxes TCW25 will be needed for district hospitals (one per hospital) for vaccine distribution from the central level to district level. For health facilities with immunization activities, about 120 vaccine carriers were needed to fill the identified gap.

Table 07: Additional cold chain equipment needed, EPI Rwanda, 2011-2012

Level	Cold chain equipment	2011	2012	Total
Central	No equipment	-	-	0
Districts	TCW 1152	9	78	87
	CB/INO/B3/90	20	20	40
Health facilities	Sibir V170 EK	50	81	131
	Vaccine carriers	60	60	120

Table 8.1: Capacity and cost (for positive storage)

National vaccine store

		Formula	2010	2011	2012	2013	2014	2015
A	Annual positive volume requirement, including new vaccine (specify:_____) (litres)	*Sum-product of total vaccine doses multiplied by packed volume per dose*	39,331 ltr	57,533 litr	116,144 litr	131,336 litr	137,075 litr	140,604 litr
B	Existing net positive cold chain capacity (litres)	*#*	126,000 litr	126,000 litr	126,000 litr	126,000 litr	126,000 litr	126,000 litr
C	Estimated minimum number of shipments per year required for the actual cold chain capacity	*A/B*	0.31	0.46	0.92	1.04	1.09	1.12
D	Number of consignments / shipments per year	*Based on national vaccine shipment plan*	4	4	4	4	4	4
E	Gap in litres	*((A/D) - B)*	**-111,568 litr**	**- 96,120 litr**	**- 96954 litr**	**- 93,116 litr**	**- 91,731 litr**	**- 90,649 litr**
F	Estimated additional cost of cold chain	*US $*	$0	$0	$0	$0	$0	$0

Table 8.2: Capacity and cost (for negative storage)

National vaccine store

		Formula	2010	2011	2012	2013	2014	2015
A	Annual negative volume requirement, including new vaccine (specify:_____) (litres)	*Sum-product of total vaccine doses multiplied by packed volume per dose*	1,645 litr	1,923 litr	2,061 litr	2,160 litr	2,252 litr	2,321 litr
B	Existing net negative cold chain capacity (litres)	*#*	15,000 litr	15,000 litr	15,000 litr	15,000 litr	15,000 litr	15,000 litr
C	Estimated minimum number of shipments per year required for the actual cold chain capacity	*A/B*	0.11	0.13	0.14	0.14	0.15	0.15
D	Number of consignments / shipments per year	*Based on national vaccine shipment plan*	2	2	2	2	2	2
E	Gap in litres	*((A/D) - B)*	**- 14,177 litr**	**- 13,039 litr**	**- 13,970 litr**	**- 13,920 litr**	**- 13,859 litr**	**- 13,840 litr**
F	Estimated additional cost of cold chain	*US $*	$0	$0	$0	$0	$0	$0

Table 09: Vaccine storage & distribution points and their characteristics, District hospitals, Rwanda, 2010

Data for intermediate stores								
List of sub-national and intermediate stores	Total population	Available net positive cold storage capacity (litres)	Available net negative cold storage capacity (litres)	Available dry storage capacity (m3)	Distance to supply (km)	Safety stock (months)	No. of vaccine deliveries	No. of deliveries of injection supplies
NYARUGENGE	300,654	277 litr	169 litr	4	10	1	12	12
GASABO	406,618	353 litr	169 litr	4	16	1	12	12
KICUKIRO	263,647	254 litr	169 litr	4	16	1	12	12
NYANZA	285,708	338 litr	169 litr	4	90	1	12	12
GISAGARA	329,128	356 litr	205 litr	4	210	1	12	12
NYARUGURU	297,102	134 litr	72 litr	4	320	1	12	12
HUYE	336,755	269 litr	169 litr	4	260	1	12	12
NYAMAGABE	355,227	448 litr	205 litr	4	330	1	12	12
RUHANGO	311,873	277 litr	169 litr	4	200	1	12	12
MUHANGA	364,377	446 litr	169 litr	4	100	1	12	12
KAMONYI	331,541	110 litr	72 litr	4	70	1	12	12
KARONGI	353,879	507 litr	446 litr	4	250	1	12	12
RUTSIRO	335,377	363 litr	169 litr	4	270	1	12	12
RUBAVU	371,270	414 litr	169 litr	4	400	1	12	12
NYABIHU	340,460	279 litr	72 litr	4	370	1	12	12
NGORORERO	358,072	408 litr	205 litr	4	160	1	12	12
RUSIZI	421,124	850 litr	338 litr	4	540	1	12	12
NYAMASHEKE	412,348	469 litr	277 litr	4	520	1	12	12
RULINDO	318,765	245 litr	169 litr	4	40	1	12	12
GAKENKE	408,556	537 litr	277 litr	4	120	1	12	12
MUSANZE	389,571	353 litr	169 litr	4	140	1	12	12
BURERA	406,927	353 litr	169 litr	4	160	1	12	12

GICUMBI	456,349	429 litr	169 litr	4	90	1	12	12
RWAMAGANA	279,737	245 litr	169 litr	4	90	1	12	12
NYAGATARE	323,634	277 litr	169 litr	4	280	1	12	12
GATSIBO	359,603	357 litr	144 litr	4	250	1	12	12
KAYONZA	266,062	277 litr	277 litr	4	160	1	12	12
KIREHE	291,112	260 litr	169 litr	4	300	1	12	12
NGOMA	298,268	235 litr	169 litr	4	250	1	12	12
BUGESERA	338,441	963 litr	108 litr	4	60	1	12	12

2.3.2. New vaccine introduction

Given the prevalence of diarrheal diseases in Rwanda, the availability of effective rotavirus vaccine and the WHO recommendation to all countries of all regions, to introduce this life-saving vaccine into routine EPI programs, Government of Rwanda plans to introduce rotavirus vaccine in early 2012. As for the pneumococcal vaccine introduction, EPI team has already updated the cold chain inventory and assessed the additional needs to accommodate rotavirus vaccine along with HPV vaccine using the WHO Forecasting tool. Rotavirus vaccine introduction plan was developed in order to identify the relevant and specific activities for the introduction process. Among those are the following:

(a) Rotavirus surveillance activities integrated to Paediatric Bacterial Meningitis Surveillance system,

(b) Reinforcement of coordination with EPI partners to address issues of technical and logistics assistance,

(c) Identification of additional cold chain needs, advocacy to fill the gap and close follow-up with the involved partners;

(d) Organization and identification of technical, logistics and social mobilization needs as the country is getting ready for this new vaccine introduction (training of health workers, revision of all EPI data collection and management tools, development of key messages, dissemination of key information in community, etc.

The more detailed activities planned for the new vaccine introduction is in the rotavirus vaccine introduction plan.

2.3.3. Vaccine management

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Findings from the 2007 cold chain and logistics assessment, revised by the recent pneumococcal vaccine PIE conducted in April 2010, have demonstrated the following strengths and weaknesses:

A) National level

Strengths

- Correct application of multi-dose vial policy (MDVP)
- Implementation of wastage monitoring principle
- Use of vaccine vial monitor (VVM) as a management tool
- Correct distribution of vaccines with diluents based on the bundling principle
- Better temperature monitoring and follow up practices observed

Weaknesses:

- Insufficient follow-up of vaccine arrival
- Insufficient vaccine management (vaccine forecasting and stock management)

- Fridge-Tag not used correctly by the staff

B) Intermediate level (district hospitals)

Strengths

- Correct application of MDVP
- Use of VVM as a management tool
- Correct use of diluents

Weaknesses

- Weak follow-up of vaccine arrival
- Insufficient vaccine forecast and stock management
- Insufficient wastage report and follow-up
- Insufficient temperature recording system
- Frozen icepacks are not conditioned prior to their use for vaccine transportation and distribution to the lower level
- Vaccines not correctly arranged in the TCW 2000 and other refrigerators
- Inappropriate use of Fridge Tag

C) Health facility level

Weaknesses:

- Weak forecast system of vaccine needs and insufficient vaccine stock follow-up
- Inappropriate use of Fridge-Tag
- Weak follow-up of vaccine wastage

2.3.4. Transport (national **and** district level**s**)

At the national level, cold chain truck is available for vaccine distribution in case of emergency and two 4WD vehicles for supervision activities with only one driver. The program needs one more vehicle and one additional driver in order to cover effectively its needs.

In most of the cases, staff from district hospitals comes to collect vaccines and other medical supplies once every month. At this level, an ambulance and a 4WD vehicle are available for vaccine and drug distribution, and supervision activities.

At the health facility level, motorcycles are available and bicycles for community health workers. Staff from health facility level goes to collect vaccines, other medical supplies and bring reports, once every month, at the district hospital level.

2.3.5. Maintenance

Contracts of maintenance were signed with private companies for all equipments of the program at the national level. At district level, some staffs were trained for preventive maintenance of cold chain equipments and spare parts are provided as needed.

2.4. Surveillance

Immunization surveillance system is integrated with other disease surveillance which report cases and deaths to the Epidemiological Department TRAC plus. Despite the fact that the EPI preventable diseases are reported though the TRAC plus Department, measles, polio and neonatal tetanus are reported directly to EPI program in order to avoid delay in the decision making process in case of outbreak. Monthly coordination meetings are held between EPI and others services (national reference laboratory, TRAC plus and lab of the University teaching hospital in Kigali.

Global initiatives: **polio** eradication (documentation on polio certification), **MNT** elimination since 2004 and **measles** control) are key areas where surveillance data is being collected routinely.

The following table shows the reported performance indicators for AFP, wild polio virus, suspected and confirmed measles cases and indicators for maternal and neonatal tetanus (MNT).

Table 10: Surveillance indicators for EPI preventable diseases, Rwanda, 2005-2010

		Years					
Diseases	Indicators	2005	2006	2007	2008	2009	2010
Polio	No polio AFP cases/100,000 people < 15yr	1.9	2.25	2.65	2.4	3.6	3.2
	WPV	0	0	0	0	0	0
Measles	% districts with suspected measles cases	50	93	90	80	93.3	100%
	# lab confirmed cases reported	25	43	13	5	5	55
MNT	# districts with suspected cases	4	2	1	1	0	0
	# cases/1000 live births	< 1	< 1	< 1	< 1	< 1	<1

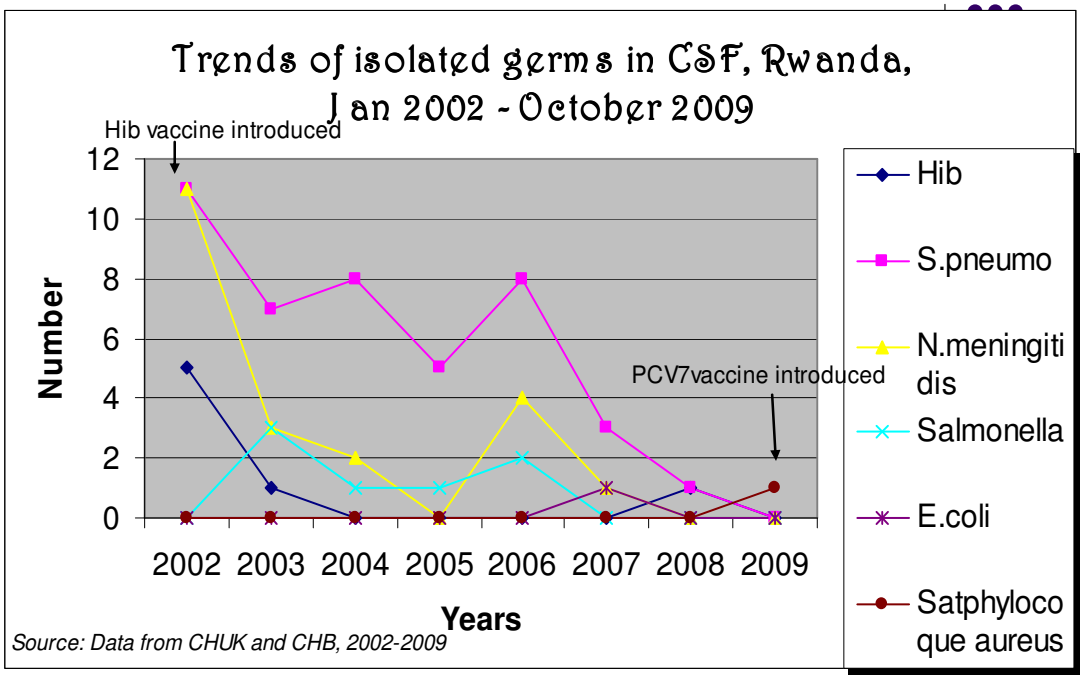
Since 2002, Rwanda initiated the paediatric bacterial meningitis surveillance (PBMS) system in one site at the University teaching hospital of Kigali. The same year, the National Immunization Program introduced the Hib and HepB vaccines, combined to DTP vaccine (Pentavalent vaccine). The following table and graph give figures from the

sentinel site. Since pentavalent vaccination started in 2002, the Hib figures were post-introduction while figures for *S. pneumoniae* were almost entirely pre-introduction. The predominance of *S. pneumoniae* over Hib did not show the baseline burden of disease for the two pathogens.

Table 11: Meningitis cases by pathogen, CH Kigali, Jan 2002- Oct 2009

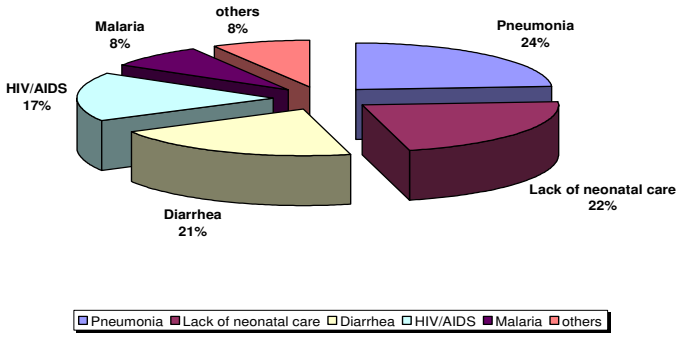
	Live	Deceased	Total
Hib	5	2	7
	71.40%	28.60%	100
S.pneumoniae	29	14	43
	67.4%	32.6%	100
N. meningitides	17	4	21
	81%	19%	100
Other pathogens	7	2	9
Culture negative	861	67	928
	92.80%	7.20%	100

Source: Unpublished PowerPoint, MoH



Data from HIMS, in 2008, have shown that **diarrheal disease** is among the most leading causes of child deaths in Rwanda.

Diarrhea, one of the most common cause of child deaths in Rwanda, 2008



From September 2010 to April 2011, data from national referral lab at University teaching hospital of Kigali has shown that, of the 43 stool samples collected from severe diarrheal cases, 13 were reported positive for rotavirus.

Cervical cancer, the most common cancer among women in Rwanda, is an important national public health concern. The World Health Organization ranks Rwanda among the countries worldwide with the highest cervical cancer incidence*, estimated at 49.4/100,000.[3] This incidence estimate is consistent with cervical cancer incidence found in Eastern African overall (42.7/100,000 women/year).[1]

Data from a population-based cancer registry in Butare which functioned during the early 1990s showed cervical cancer responsible for 22.5% of cancers among women.4 In a retrospective study of cancer cases from two university teaching hospitals (University Central Hospital of Kigali [CHUK] and University Central Hospital of Butare [CHUB]) seen from 2000 through 2004, cervical cancer accounted for 27.3% of cancers among the women and was the most common malignancy encountered in all age groups.[5]

*age-standardized

[3] Castellsagué X, et al. HPV and Cervical Cancer in the World. 2007 Report. WHO/ICO Information Centre on HPV and Cervical Cancer (HPV Information Centre). [Accessed 24 March 2010]. Available at: www.who.int/hpvcentre

[4] Newton R, et al. Cancer in Rwanda. Int J Cancer. 1996 Mar 28;66(1):75-81.

[5] Ndahindwa V, et al. Cancer in 2 Teaching Hospitals of Rwanda (CHUK & CHUB). Presented at 11th Butare Medical Congress-BMC, Butare, Rwanda; 28–30 September 2006.

2.5. Advocacy, Communication / Social Mobilization

There is a Communication Center for Health Sector in Rwanda. The Center was created in 2002 and since then, it provides technical support to all health programs / services. Unfortunately, the Center never met the immunization program for routine activities, but did it just for SIA activities. In addition, staff from this Center doesn't have the needed background for immunization activities. Following the Government's policy of reducing the number of posts within the ministries, there is no communication focal point position within the EPI Program.

The Center works with the following different organizations:

- Red Cross works with community, especially during the mass campaigns.
- URUNANA Development which works with BBC and European Union
- PROFEMME TWESE HAMWE which sensitizes population at the community level

There is no communication plan for immunization found at the national level (EPI). However, at the community level, about 13,000 community volunteers are working at the peripheral level with health workers, tracking defaulters and promoting immunization activities.

During the preparation of pneumococcal conjugate vaccine introduction, a communication sub committee was put in place and addressed the main concerns of parents and of the health workers for the introduction of this vaccine. The sub committee developed and pre tested key messages for parents before and immediately after immunization session.

2.6. Management

2.6.1. Planning process

Planning process is conducted by each health program. Developed plans are sent to the MOH for consolidation. MOH integrates different plans received from health programs/services and come up with the national health plan. EPI is part of this plan which comes from the cMYP (where all the objectives and strategies were defined for every specific year of the life cycle of the cMYP).

2.6.2. Human resource management

EPI staff comprises a small team which works with the health districts to implement immunization activities. In most of the time, EPI team relays on external support to carry

out some key activities. National EPI develops policy and strategies and helps districts to implement immunization activities.

2.6.3. Administration and Coordination

Immunization activities are coordinated at the national level by the national Interagency Coordinating Committee (ICC), which works with all the technical partners on a routinely basis. At a very high level, ICC is chaired by the Permanent Secretary of health and meets once every three months.

2.6.4. Monitoring, Supervision and Evaluation

Several monitoring meetings are being held, at the district level, between staff from EPI and those from health districts, district hospitals and health centres. Health districts also hold the same review meetings once every semester and reports to the community representatives. Once every quarter, national EPI sends a feedback to all districts

Supervision visits are planned by the national level to districts quarterly. At the end of each supervision visit, a verbal feedback is provided to the visited district followed by a written feedback. District hospitals supervise the health facilities. Most of the planned supervision visits in 2009 did happen because of the pneumococcal vaccine introduction (by the central level).

2.7. Capacity building

In 2005, two staff from national EPI and two professors from University were trained for MLM course, unfortunately no follow-up action was taken to continue with this training at the country level (adaptation of training modules at the country level, training of health workers at all levels and integration of immunization course in the cursus of medical student training program). About 80 staff from districts were trained for RED approach and 60 staff (2 by district) trained for data quality self assessment (DQS). During the pneumococcal conjugate vaccine introduction process, training covering all technical areas of the EPI was organized at all levels (training of trainers at central and district levels and training of health workers at the very operational level. Maintenance training session was organized for staff at the hospital level. Recently, as part of the HPV vaccine introduction preparedness, training of health professional was carried out in March 2011. In addition to these training sessions, supportive supervisions are being conducted at the lower levels.

2.8. Financing

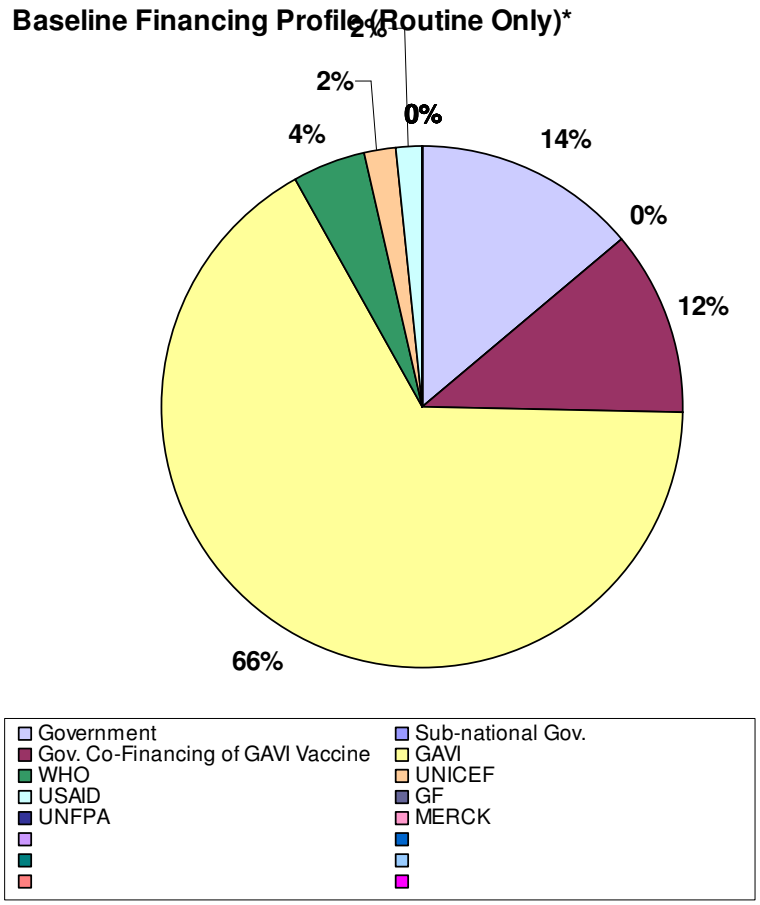
Rwandan national EPI is financed by the Government and its partners (GAVI, WHO, UNICEF, USAID). The Government already pays all the traditional vaccines and co-finances the new and under used vaccines. For under used vaccine (DTP-HepB-Hib),

Government co-financed more than the minimum required by GAVI Alliance ($0.75 instead of $0.20).

The table bellow shows the baseline indicators related to immunization specific costs.

Baseline Indicators	2010
Total Immunization Expenditures	$9,186,997
Campaigns	$1,397,451
Routine Immunization only	$7,789,546
per capita	$0.8
per DTP3 child	$26.3
% Vaccines and supplies	84.4%
% Government funding	16.4%
% Total health expenditures	1.6%
% Gov. health expenditures	3.5%
% GDP	0.15%
Total Shared Costs	
% Shared health systems cost	
TOTAL	$9,186,997

The graph bellow shows the baseline financing profile of the program by partners and the Government role in 2010.



2.9. Strengths and Weaknesses

Based on the above situation analysis, following strengths, weaknesses, opportunities and threats were identified:

STRENGTHS	WEAKNESSES
Service delivery	
1. The overall vaccination coverage is good for children less than 1 year of age. Vaccination coverage reached and remained high for all antigens since 2003 2. High coverage observed during the SIA both in 2003, in 2006 and in 2009 3. From 2007, all districts are well performing (drop-out Penta1-Penta3 <10%) 4. Pneumococcal conjugate vaccine	1. Decline of coverage from 2008 to 2010 due probably to the unknown denominator situation (DTP3 < 80% in 2010) 2. Reported TT2+ coverage for pregnant women is low; the reporting system in place may not be able to document TT3 or TT4, or TT5 3. Vaccination coverage for routine measles vaccination (2007), for Penta1 and OPV1 (2006), and for the

STRENGTHS	WEAKNESSES
introduced successfully in 2009 and reached the coverage of more than 70% in 2010	integrated measles campaign (2006 and 2009) was higher than 100% (data quality) 4. Number of unvaccinated children with Penta3 starts to increase
Vaccine supply and quality	
1. No vaccine stock-out was reported 2. All the traditional vaccines are purchased by the Government through UNICEF channel and pentavalent vaccine is co-financed by Government and GAVI Alliance 3. Health districts (district hospitals) and health facilities collect vaccines actively from the higher level (pull system)	1. NRA not yet operational to assess vaccine security in the country 2. Big amount of vaccines at the central level at the end of the year (forecasting or distribution related problem) 3. Vaccine forecasting system poses some problems at all levels
Cold chain and Logistics	
1. Sufficient cold storage capacity at central level for traditional vaccines new and under-used vaccines to be introduced in 2011 and 2012 2. Correct application of MDV policy 3. Implementation of wastage monitoring principle 4. Use of VVM as a management tool 5. Correct distribution of vaccine and diluent based on the bundling principle 6. Temperature monitoring and follow up done 7. Fridge-Tags found at central, district and health facility levels	1. Insufficient cold storage capacity at district and the health facility levels to accommodate new vaccines to be introduced in 2011 and 2012 (HPV and rota vaccine) 2. Insufficient vaccine stock follow-up at district and health facility levels 3. Insufficient vaccine wastage reporting and follow-up 4. At health facility level and some district hospitals, staff not trained and don't know how to use Fridge-Tags 5. Frozen icepacks not conditioned before vaccine transport in most health facilities 6. Shake test not known by most of health workers at health centre level
Surveillance	
1. Polio eradication indicators satisfactory 2. MNT elimination goal achieved and sustained since 2004 3. 100% of health districts reported suspected measles cases in 2006, in 2010 4. Country initiated paediatric bacterial meningitis surveillance since 2002 and continues to function in two sites today	1. No case of AEFI reported. There is no system of zero reporting if no AEFI cases are seen during a reporting period 2. Weak syndromic surveillance system in place for pneumococcal related sicknesses with standard case definitions 3. Cervical cancer is the most common

STRENGTHS	WEAKNESSES
5. Rotavirus surveillance has been integrated into PBMS system 6. Rotavirus surveillance is now integrated in 5 sites	cancer among women in Rwanda
Communication	
1. Existence of national health Centre which assists health programs with communication/social mobilization activities 2. Existence of NGOs working with communities 3. About 13,000 community volunteers work at the peripheral level with health workers and promote immunization activities 4. Existence of communication sub committee which developed key messages to address concerns of parents for pneumococcal vaccine introduction	1. No Communication plan found for immunization activities at the national EPI level 2. No communication focal point within the Program 3. National health Centre meets with EPI program just for SIA's activities and not for the routine EPI
Management	
1. Existence of a national planning process within the MOH 2. Existence of micro planning process at the health district level 3. Existence of operational ICC for immunization at the national level 4. Intensification of supervision visits in 2010 to prepare PCV7 vaccine PIE activity	1. Insufficient of human resources within the national EPI 2. Data quality remains an issue at most of health facilities
Capacity building	
1. Two EPI staff and two professors from University trained for MLM course 2. Training of health professionals, at all levels, prior to pneumococcal vaccine introduction was conducted 3. Training took into account major technical areas of immunization (vaccine management included) 4. Training of health workers prior to introduction of HPV vaccine 5. Supervision are being conducted at all levels	1. No continuation of MLM course within the country (adaptation of training modules, integration of immunization course for the medical student training)

STRENGTHS	WEAKNESSES
Finance	
1. EPI financed by the Government and partners (GAVI and others) 2. Government has a budget line available for vaccine purchase and other immunization activities	

2.10. Opportunities and Threats

OPPORTUNITIES	THREATS
1. Government commitment and involvement in achieving MDGs (for MDG 4,5,6) 2. Presence of permanent partners for EPI program (GAVI, WHO, UNICEF, USAID, etc.) 3. Donation of HPV vaccine donation from the manufacturer (MERCK)	1. Global economic crisis and waning support from donors 2. Frequent natural disasters across the world affect some donors 3. Insufficient human resources within the EPI program

2.11. Identified Problems

1) Decline of vaccine coverage over time (from 2008 to 2010) due to unknown denominator
2) Reporting system of TT vaccination doses for pregnant women in place is not able to document TT3 or TT4, or TT5
3) Number of unimmunized children starts to increase and decline of administrative immunization coverage for all antigens except for measles in 2009 and 2010 compared to 2008
4) Population data not known at district level and impact on the denominator
5) Vaccine management problem: forecasting and stock management (in districts and health facilities)
6) Poor data quality at districts and health facility levels
7) Diarrheal diseases, third leading cause of deaths among under 5 infants
8) High incidence of cervical cancer among women
9) NRA not yet operational to assure the vaccine quality
10) Insufficient human resources within the national EPI program
11) Absence of communication plan at the national EPI level
12) No communication focal point at the EPI program

III. PRIORITIES

The priorities in the multi-year plan address the following main challenges

1) Decline of vaccination coverage over time due to unknown denominator
2) Heavy burden of severe diarrheal and pneumococcal diseases in the country
3) High incidence of cervical cancer among women in the country
4) Insufficient TT2+ vaccination recording system for the pregnant women and coverage requirement compared to the GIVS objectives
5) Vaccine forecasting and management
6) Poor data quality
7) National Regulatory Authority (NRA) not operational to ensure the vaccine security
8) Insufficient human resources within the EPI program (qualitatively and quantitatively)

IV. OBJECTIVES

The following key objectives and priorities are highlighted in the table below

Priorities and points to improve	Objectives	Milestones	Global goals	Order of priority
Severe diarrheal disease associated with rotavirus	By 2015, 100% of under 1 children will be vaccinated with 3 doses of rotavirus vaccine	2011: Rota vaccine intro. Plan developed and proposal submitted 2012: 80% 2013: 96% 2014: 98% 2015: 98%	By 2012, introduce rotavirus vaccine nationwide	**1**
Pneumococcal diseases are prevalent in the country	By 2015, 100% of under 1 children will be vaccinated with PCV-13, 3rd dose	2011: Switch from PCV-7 to PCV-13 and reach 90% 2012: 94% 2013: 98% 2014: 98% 2015: 98%	By 2011, immunize and reach at least 90% of <1 children with 3 doses of PCV-13	1
High incidence of cervical cancer among women	Introduce nationwide and immunize 90% of girls 10-14 years old with HPV, starting in 2011	2011: Introduce HPV vaccine nationwide and immunize at least 90% of adolescent girls 2014-2015: HPV vaccine to be procured by the Government		1
Unknown denominator and impact on immunization coverage	Increase immunization coverage with all antigens of the program	2011: Extend the survey in districts with poor coverage and identify true coverage and denominator 2012: Decision made onwhat to do and which denominator to	By 2015, reach the coverage of at least 90% and maintain it.	**1**

Priorities and points to improve	Objectives	Milestones	Global goals	Order of priority
		use for EPI 2012: Intensify RED approach and reach at least 90% coverage for all antigens		
Poor TT dose recording system & coverage TT2+ remains low compared to GIVS objectives	By 2015, improve the recording TT dose system & report 95% of pregnant women with at least TT2+ coverage	2011: 70% 2012: 80% 2013: 90% 2014: 95% 2015: 95%	By 2011, review the TT2+ vaccination recording system, immunize and reach at least 70% of women with TT2+ By 2015: 95% of pregnant women immunized with TT2+	2
Poor vaccine management especially at intermediate and health facility levels	By 2015, a well performing vaccine management system will be in place within 100% of health districts	2011:80% 2012: 80% 2013: 90% 2014: 100% 2015: 100%	By 2011, ensure a well vaccine management system at all levels (improve vaccine forecasting and good stock management)	2
NRA non operational to ensure vaccine security	By 2012, NRA is operational and used to ensure the vaccine security	2011: Meeting with the appropriate directorate and discuss the operational issues for NRA and make recommendations	Ensure the vaccine security	3
Insufficient human resources within the EPI program (qualitatively and quantitatively)	By 2015, reinforce the capacity of the EPI staff (quantitatively and qualitatively)	2012: proposed posts for EPI is fulfilled and trained		4

6.1. Objective 1: Vaccination coverage and vaccine wastage rates

	Coverage Objectives					Wastage Objectives				
Type of Vaccine	**2011**	**2012**	**2013**	**2014**	**2015**	**2011**	**2012**	**2013**	**2014**	**2015**
Routine Immunization	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Traditional Vaccines										
BCG	91%	95%	98%	98%	98%	50%	50%	50%	50%	50%
TT – Pregnant women	70%	80%	90%	95%	95%	15%	15%	15%	15%	15%
Measles	91%	95%	98%	98%	98%	25%	25%	25%	25%	25%
OPV(3)	90%	94%	96%	98%	98%	15%	15%	15%	15%	15%

Underused and New Vaccines										
DTP-Hep B-Hib(1)	91%	94%	96%	98%	98%	5%	5%	5%	5%	5%
DTP-Hep B-Hib(3)	91%	94%	96%	98%	98%	5%	5%	5%	5%	5%
PCV-7 (3)	91%	94%	96%	98%	98%	5%	5%	5%	5%	5%
Rota vaccine (3)		80%	96%	98%	98%	5%	5%	5%	5%	5%
HPV										
Campaigns	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**
Preventive polio campaign	100%				100%		10%			10%
Measles follow-up campaign		100%			100%			10%		10%

4.2. Other objectives:

By 2012, reach and maintain the polio eradication initiative goal
By 2015, maintain the MNT elimination goal
By 2015, maintain the measles control level

V. STRATEGIES AND PRIORITY ACTIVITIES

The program shall focus on strategies and activities relating to the following EPI components:

1. Vaccination service delivery
2. Advocacy / Communication / Social Mobilization
3. Surveillance for EPI preventable diseases
4. Vaccine supply, and cold chain, and logistics management
5. Program management and capacity building

Strategies and activities to be implemented for each of these program areas are highlighted in the table bellow.

5.1. Vaccination service delivery

Objectives	**Strategies**	**Priority activities**
By 2015, immunize under 1 children and reach the following coverage: BCG 98% Penta3: 98% PCV7-3: 98% OPV3: 98% Rota-3: 98% Measles: 98% TT2+: 95% PCV-13 (3): 98% HPV:	Implement / reinforce Reaching Every District (RED) approach in all districts	- Implement the five RED components in all districts - Organize workshops on micro planning within all health catchments areas in districts - Strengthen the outreach services in hard-to-reach areas
	Rota vaccine introduction	- Develop rota vaccine introduction plan - Develop a proposal and apply for rota vaccine introduction - Implement the preparatory activities for a successfully introduction of rota vaccine - Introduce the vaccine (rotavirus vaccine) - Post introduction evaluation one year later
	HPV vaccine introduction	- Develop vaccine introduction plan - Implement the introductiom plan

		- Introduce HPV catch-up campaign through schools and immunize girls aged 10-14 years old
By 2015, maintain the measles control level and the polio eradication status	Reinforce the case-based surveillance in all districts Reach the unreached with immunization services	- Strengthen outreach services where needed - Provide all health centres with motorbikes - Provide incentives to health workers and community health workers
	Measles supplemental immunization (SIA) activities as second opportunity of vaccination	- Implement measles follow-up campaigns in 2012 and in 2015
	Polio eradication activities	- Implement the preventive polio campaign in 2011 and in 2015 or reactive campaign in case of wild polio virus is detected - Maintain high level of AFP surveillance indicators - Identify high risk areas and be ready for reactive campaign in case of WPV importation - Maintain high OPV3 coverage (above 90%)

5.2. Advocacy, communication, and social mobilization

Objectives	**Strategies**	**Priority activities**
By 2015, immunize under 1 children and reach the following coverage: BCG 98% Penta3: 98% PCV7-3: 98% OPV3: 98% Rota-3: 98% Measles: 98% TT2+: 95% PCV-13 (3): 98% HPV:	Strengthening of the ICC	- Advocate and engage additional partners to support EPI program - Hold the strategically ICC meetings quarterly - Hold, on monthly basis, technical ICC meetings with ICC technical partners
	Reinforce communication/social mobilization working sub committee	- Conduct focus groups and develop key messages for HPV and rotavirus vaccine introduction - Pre test the developed key messages for new vaccine introduction - Develop BCC materials for routine immunization
	Development of integrated plan of communication	- Conduct a planning workshop with other programs and develop an integrated plan of communication - Implement , monitor and evaluate the developed plan
By 2015, maintain the measles control level, polio eradication initiative and MNT elimination goals	Implementation of communication plan for routine, supplementation and surveillance activities.	- Organize meeting with NGOs and associations, including associations of community health workers, to discuss their participation in immunization activities. - Synthesize clinicians and community volunteers on surveillance activities and reinforce case-based surveillance activities
By 2012, NRA is operational and used to ensure the vaccine security	Advocacy with respect to decision makers	- Plan and hold meeting with Pharmacy directorate of MOH for NRA reinforcement
By 2012, reinforce the capacity of the EPI team (quantitatively and qualitatively)	Advocacy with respect to ICC partners in order to influence the MOH to hire more staff	- Plan and hold meeting with MOH for human resource reinforcement at national EPI level and fill the proposed posts for EPI

Objectives	Strategies	Priority activities
	Training and BCC reference materials dissemination	- Develop BCC materials for new vaccines. - Explore conducting training for joint interventions - Train 2 EPI personnel in surveillance - Train 2 central level EPI personnel in EPI program management - Arrange for the participation of two EPI health personnel in international meetings on immunization - Train district and health centre level in vaccine management

5.3. Surveillance for EPI target diseases

Objectives	Strategies	Priority Activities
By 2012, reach and maintain polio eradication goal and integrated surveillance	Integrated disease surveillance and response	- Strengthen active surveillance in AFP, in all districts - Convene monthly meetings with focal points for AFP surveillance - Establish a database on integrated surveillance of diseases
		- Integrate rotavirus surveillance within the PBMS sentinel sites
	Reinforce links between laboratories for different conditions (polio and measles)	- Strengthen collaboration between the laboratories for polio and measles - Provide sufficient reagents to referral lab - Reinforce the capacity of lab workers
	Use of standard case definition for pneumococcal and severe diarrheal disease surveillance	- Train health workers for case definition of pneumococcal disease and severe diarrheal disease to be reported - Update the reporting tools which include pneumococcal and diarrheal diseases and train them on how to complete the tools
Maintain the measles control level reached	Active case-based surveillance for measles by the way of integrated surveillance for vaccine-preventable diseases	- Strengthen active surveillance for measles in all districts - Conduct monthly meetings for surveillance focal points - Develop district level emergency preparedness and prevention plans - Strengthen analysis and use of data at all levels - Train health facility managers in surveillance for AFP, measles, NNT and for pneumococcal disease
	Capacity-building for AEFI	- Train new district focal points on AEFI - Conduct regular monitoring of AEFI - Report zero case of AEFI if there is no case of AEFI during the reporting period
Maintain the accomplishment of maternal neonatal tetanus (MNT)	- Active surveillance for MNT by the way of integrated	- Strengthen active surveillance of AFP, measles, and MNT in all districts

Objectives	Strategies	Priority Activities
elimination during the timeframe of this plan and thereafter	surveillance for vaccine-preventable diseases	- Implement the plan for maintaining the elimination of MNT

5. 4. Vaccine supply, cold chain, and logistics management

Objectives	Strategies	Priority Activities
By 2015, immunize under 1 children and reach the following coverage: BCG 98% Penta3: 98% PCV7-3: 98% OPV3: 98% Rota-3: 98% Measles: 98% TT2+: 95% PCV-13 (3): 98% HPV:	Regular high quality vaccine supply at all levels	- Order and supply vaccines to all districts - Procure more cold chain equipment to accommodate new vaccines (HPV, rotavirus vaccine) at identified district hospitals and health facilities - Provide country with injection supplies - Provide HFs with growth monitoring cards
	Regular auto-disable (AD) syringes supply to all districts	- Implement the policy of providing AD syringes for all injectable vaccines in all districts using the bundling principle - Build one incinerator per health facility without incinerator « per district »,
	Best practices of AD syringes in all districts	- Supportive supervision in vaccinating health facilities
	Improvement of means of transportation at the central level	- Provide one additional 4x4 vehicle to national EPI
By 2015, a well performing vaccine management system will be in place within 100% of districts	Vaccine management improvement	- Train health workers in vaccine forecast, vaccine stock management and vaccine wastage monitoring - Provide appropriate management tools at district and health facility levels - Supervise teams at district and health facility levels - Monitor vaccine wastage

5.5. Program Management and capacity building

Objectives	Strategies	Priority Activities
By 2015, immunize under 1 children and reach the following coverage: BCG 98% Penta3: 98% PCV7-3: 98% OPV3: 98% Rota-3: 98% Measles: 98% TT2+: 95% PCV-13 (3): 98% HPV:	EPI management improvement at all levels	- Hold technical ICC meeting on a monthly basis - Develop on job-training plan and implement it for all the district health workers - Supervise districts and health facilities - Train health workers in EPI management - Improve the management of data through continuing education, monitoring, and feedback to all levels
	Analyse to improve efficiency, effectiveness, access, and use of services	- Conduct operational researches (OR) on integrating other health interventions with immunization - Conduct operational research (OR) to determine effective and efficient ways to reach the hard-to-

Objectives	Strategies	Priority Activities
		reach populations - Conduct OR on new technologies
	Maintain existing links and explore integration with other health interventions	- Include vitamin A in 2011 measles campaign - Integrate vitamin A supplementation into routine vaccination - Support implementation of IMCI through routine vaccination - Monitor performance with integrated interventions - Collaborate with Integrated Disease Surveillance and Response and with emergency humanitarian activities to assure that required vaccines are available during emergencies
By 2012, reinforce the capacity of the EPI staff (quantitatively and qualitatively	Current staffing review and adjustment in EPI Program	- Conduct inventory of personnel and needs - Conduct meeting to review and advocate for additional staffing as needed - Train all EPI staff using the national MLM course

VI. TIMELINE ACTIVITIES

Components	Strategies	Priority Activities	2011	2012	2013	2014	2015
Vaccination service delivery	Implement / reinforce / sustain Reaching Every District (RED) approach in all districts	- Implement the five components of RED in all districts	X	X	X	X	X
		- Organize workshops on micro planning with districts	X	X	X	X	X
	Rotavirus vaccine introduction	- Develop introduction plan					
		- Submit the application to GAVI					
		- Conduct vaccine introduction activities	X				
		- Introduce the vaccine		X			
		- Conduct rota vaccine post introduction evaluation			X		
	HPV vaccine introduction	- Develop introduction plan	X				
		- Train health workers	X				
		- Conduct the catch-up vaccination to all girls aged 10-14 at school	X	X	X	X	X
		- Document vaccination and report	X	X	X	X	X
	RED approach implementation in all districts	- Strengthen outreach services	X	X	X	X	X
		- Provide all health centres with motorbikes	X	X			
		- Provide incentives to health workers and to community health workers	X	X	X	X	X
	Supplemental immunization activities	- Implement preventive polio campaign at risk areas	X				X
		- Implement the measles follow-up campaign 2011		X			X

Components	Strategies	Priority Activities	2011	2012	2013	2014	2015
Advocacy, Communication / Social mobilization	Strengthening of the ICC	- Advocate and engage additional potential partners for EPI	X				
		- Hold, on a monthly basis, technical ICC meetings	X	X	X	X	X
		- Hold strategic ICC meetings on quarterly basis	X	X	X	X	X
	Development of integrated communication plan	- Develop, with other programs, an integrated plan of communication	X	X	X	X	X
		- Implement communication activities within the EPI program	X	X	X	X	X
		- Implement the developed plan	X	X	X	X	X
	Implementation of communication plan for routine, supplementation and surveillance activities.	- Develop the communication plan for measles	X	X	X	X	X
		- Organize meeting with NGOs and associations, including community health workers, to discuss their participation in immunization activities .	X	X	X	X	X
	Advocacy with respect to decision makers	- Plan and hold meeting with Pharmacy directorate of MOH for NRA reinforcement	X	X			
	Advocacy with respect to ICC partners in order to influence the MOH	- Plan and hold meeting with MOH for human resource reinforcement at national EPI level	X	X			
Surveillance of the EPI targeted diseases	Integrated disease surveillance and response	- Strengthen active surveillance for AFP, in all districts	X	X	X	X	X
		- Establish a database on integrated disease surveillance	X				
		- Convene monthly meetings with focal points for AFP surveillance		X	X	X	X
	Reinforce links between laboratories for different conditions (polio and measles)	- Strengthen collaboration between the laboratories for polio and measles	X	X	X	X	X
		- Provide sufficient reagents	X	X	X	X	X
		- Reinforce the capacity of lab workers	X				
	Case definition for pneumococcal and severe rotavirus diseases	- Train health workers for case definition of pneumococcal diseases and severe diarrheal to be reported	X	X			
		- Update the reporting tools which include rotavirus diseases and train them on how to complete the tools	X				

Components	Strategies	Priority Activities	2011	2012	2013	2014	2015
	Active case-based surveillance for measles by the way of integrated surveillance for vaccine-preventable diseases	- Strengthen active surveillance for measles in all districts	X	X	X	X	X
		- Conduct monthly meetings for surveillance focal points	X	X	X	X	X
		- Develop district level emergency preparedness and prevention plans	X				
		- Strengthen analysis and use of data at all levels	X				
		- Train health facility managers in surveillance for AFP, measles, NNT, pneumococcal and rotavirus disease	X				
	Capacity-building for AEFI	- Train new district EPI focal points in AEFI	X	X	X	X	X
		- Conduct regular monitoring and reporting of AEFI	X	X	X	X	X
Vaccine supply, cold chain, logistics management	Regular high quality vaccine supply at all levels	- Forecast, order and supply vaccines to all districts	X	X	X	X	X
		- Assess cold chains & logistics and procure additional cold chain equipment for rotavirus vaccine introduction	X				
		- Provide health centres with revised growth monitoring cards	X	X	X	X	X
	Regular auto-disable (AD) syringes supply to all districts and health centres	- Implement the policy of providing AD syringes for all vaccines in all districts	X	X	X	X	X
		- Build one incinerator per health facility « per district »,	X	X	X	X	X
	Vaccine management improvement	- Train health workers on vaccine forecast, stock management and vaccine wastage monitoring	X	X	X	X	X
		- Provide appropriate revised management tools at district level	X	X	X	X	X
		- Supervise teams at district and health facility levels	X	X	X	X	X
		- Monitor vaccine wastage	X	X	X	X	X
	EPI management improvement at all levels	- Hold technical ICC meeting on a monthly basis	X	X	X	X	X
		- Develop on job-training plan and implement it for all the district health workers	X	X	X	X	X
		- Supervise districts and health facilities	X	X	X	X	X
		- Train health workers in EPI management	X		X	X	
		- Improve the management of data through continuing education, monitoring, and feedback at all	X	X	X	X	X

Components	Strategies	Priority Activities	2011	2012	2013	2014	2015
		levels					
Program management and Capacity building	Analyses to improve efficiency, effectiveness, access, and use of services	- Conduct operational researches (OR) on integrating other health interventions with immunization - Conduct OR to determine effective and efficient ways to reach the hard-to-reach populations - Conduct OR on new technologies	X	X X X	X		
	Maintain existing links and explore integration with other health interventions	- Include vitamin A in 2012 measles campaign - Integrate vitamin A supplementation into routine vaccination - Support implementation of IMCI through routine vaccination - Monitor performance with integrated interventions - Collaborate with Integrated Disease Surveillance and Response and with emergency humanitarian activities to assure that required vaccines are available during emergencies	X	X X X X X	X X X	X X X	X X X

VII. IMPLEMENTATION, MONITORING AND EVALUATION MECHANISMS

7.1. Implementation

The cMYP, once developed and approved by all ICC members, will need to be printed and largely disseminated to all partners and to the implementers at district level. The cMYP will serve both as a management and advocacy tool for the Ministry of Health /EPI and help partners to better understand their involvement while making decision to support the immunization program.

Develop an operational plan for the first year of implementation. This will be done every year, with much attention focused on the year's objectives and strategies as developed in cMYP. Detailed activities and key indicators will be defined.

Support to health districts for micro planning sessions with particular attention to a very detailed situation analysis and to the objective definition. Planned activities will need to be concrete and those which address the planned objectives.

7. 2. Monitoring and Evaluation

Country will be required to develop a monitoring and evaluation plan. The plan will define and list key indicators to be followed on a regular basis. Periodic follow-up meetings will be organized at all levels. Annual and mid-annual reviews will also be planned and carried-out in order to assess progress made toward the planned objectives, identify the weaknesses and update the plan as needed. A feedback will always be provided to EPI focal points at all levels.

The following table shows some key indicators that will be followed by Program:

Strategy	**Key indicators**
Polio	OPV3 coverage
	Non-polio AFP rated >2 per 100,000< 15 years
Measles	Routine measles coverage
	% of districts that report at least one suspected case
	Mass campaign coverage in target group
MNT	TT2+ coverage
	Number of districts reporting at least 1 case per 1000 live births
Vaccination coverage and drop-outs	BCG coverage
	DTP-HepB+Hib1
	DTP-HepB+Hib3
	PCV7-1
	PCC7-3
	Rota-1
	Rota-3
	HPV1
	HPV2
	HPV3
	% of districts >80% DTP-HepB+Hib3 coverage
	DTP1-measles drop-out rate
	DTP1-DTP3 drop-out rate
	% of districts with DTP1-DTP3 drop-out rate >10%
	% of districts with DTP1-DTP3 drop-out rate <10
	% of districts with DTP1-measles drop-out rate >10%
	% of districts with DTP1-measles drop-out rate < 10
Surveillance of routine reporting	% Completeness of reports
	% Timeliness of reports
Cold chain and logistics	% of districts with functioning cold chain equipments
Injection safety	% of districts with sufficient supply of AD syringes
	% districts using AD syringes
Supply of vaccines and injection supplies	Stock-outs of vaccines
	Stock-outs of syringes
	Stock-outs of diluents
Communication/social mobilization	Existence of annual plan
Integration with other health interventions	Integration
Human resources	Number of vaccinators per 100,000 population
Sharps waste management	% of health facilities with functioning incinerator per districts?
	% of health facilities with safety boxes

Strategy	**Key indicators**
Interagency Coordinating Committee	Number of meetings held per year
Financial sustainability	Proportion of coming 5-year's total program costs secured (trend indicator)
	Proportion of EPI routine costs funded through Govt own resources
	Proportion of Govt funding to routine program costs, (minus pentavalent vaccine)

VIII. BUDGET, FINANCING AND FINANCING GAPS FOR cMYP

8.1. Methodology and inputs into program costing

This section presents the budget, financing and financing gap analysis for the program, based on the expected activities to be carried out. The methodology is based on deriving costs of different program inputs (such as vehicles needed, or vaccines), and activities to be carried out (such as trainings, etc). Information is collected in a pre-designed costing, financing and gap analysis tool for cMYP, supplied by WHO.

The following is a brief summary of the information incorporated.

8.1.1. Health sector analysis

The country Gross Domestic Products (GDP), which was estimated to US$ 259 per capita in 2006, increased during the last 4 years and reached US$ 536 per capita in 2009. The projection for 2011 is as US$ 600 per capita. The total health expenditure is estimated at US$ 48 per capita, with the Government expenditure at 47% of this. The 1US= 580 FRW as of in October 2010.

Regarding key demographic indicators, the most recent census, conducted in 2002 has estimated the population to 8,128,553 inhabitants. Using the population grow rate of 2.6%, the estimated population for 2010 was estimated to 9,981,415 inhabitants. The births represented 4.1% of the total population and surviving infant 3.8%. Women of child bearing age represent 22% of the population. The infant mortality which was estimated at 107/1000 up to 2005, down to 86/1000 in 2006 is now estimated to 62/1000 live births (2008).

8.1.2. Vaccines and injection supplies costs

The country uses surviving infants for forecasting for all antigens, apart from BCG and TT. The estimated number of surviving infants in 2010 is 374,503. Antigens used in the country, with the coverage and wastage targets for the period of the multi year plan, are already highlighted in section IV. Key cost related highlights include:

- Costs for respective doses of antigens, and supplies are based on current contracts between manufacturers and UNICEF. Prices are updated as per 19 Apr 2010. AD syringes validity is 31/8/2011; Safety boxes price validity is 30/9/2011.
- The country is carrying out preventive polio campaign in 2011 and in 2015 and a follow-up measles campaign in 2012 and in 2015. In 2015, both polio and measles follow campaigns will be organized.

8.1.3. EPI personnel

The personnel for EPI at the national level are: 1 EPI manager, 1 Monitoring/Evaluation officer, 2 Surveillance officers, 1 Logistician, 1 Cold chain officer, 1 International

vaccine officer, 1 Driver, 2 messengers and 1 cleaner. These all spend 100% of their time on EPI and some spend on average 2 days per month on supervision, apart from the International vaccine officer, messengers and cleaner.

Program planned to add 5 more staffs in order to effectively fit the needs of the program (Epidemiologist officer, Accountant, Communication/social mobilization focal point, Data manager and a second driver), unfortunately they haven't had chance to do so because of the Government's policy to limit the number of employees at the public sector. Attempt will be made through strategic ICC team and see if the additional staff can be added in 2012.

At the district level, the District and Hospital health officers are estimated to spend 20% of their time on EPI, while the selected EPI focal point spends 40% of time on EPI.

At the health facilities, the health officer spends an estimated 20% of their time on EPI, while the selected EPI focal point spends 60% of their time. The community volunteers also spend 20% of their time on EPI related activities. These volunteers don't get salaries, as with all the other staff associated with EPI, but get allowances when they provide outreach activities.

8.1.4. Vehicles and transport costs

Fuel price is US$ 1.7, with the maintenance expenses estimated at 15% of the fuel expenses. Vehicles useful life is estimated at 5 years. The program uses 4WD vehicles, and motorcycles. The 4WD vehicles are used at the central level (100% for EPI) and district level (20% for EPI). Motorcycles are used at district (20% for EPI) and health facility (20% for EPI) levels. Cold room truck available at the central level for vaccine distribution in case of emergency

There are 2-4WD vehicles at the central level for EPI and a third is planned for 2012. On the other hand, each district has on average 1 vehicle and 1 motorcycle.

8.1.5. Cold chain equipment

Cold chain storage capacity was increased in 2008 with the introduction of pneumococcal vaccine. Additional wolk-in-cold room, hundreds of refrigerators, cold boxes, vaccine carriers and spare parts were procured and distributed to all levels (central, district hospitals and health centers). However, in order to accommodate HPV and rotavirus vaccines, more cold chain equipments are needed at some district hospitals and some health facility levels.

8.1.6. Campaign operational costs

Preventive polio vaccination campaign and measles follow-up campaign are to be carried out in 2011, 2012 and in 2015 respectively. Measles campaign will be organized as an

integrated campaign, with ITN distribution, mebendazole, and Vitamin A supplementation to be provided (US$ 1.062 per child).

8.1.7. Costs of activities

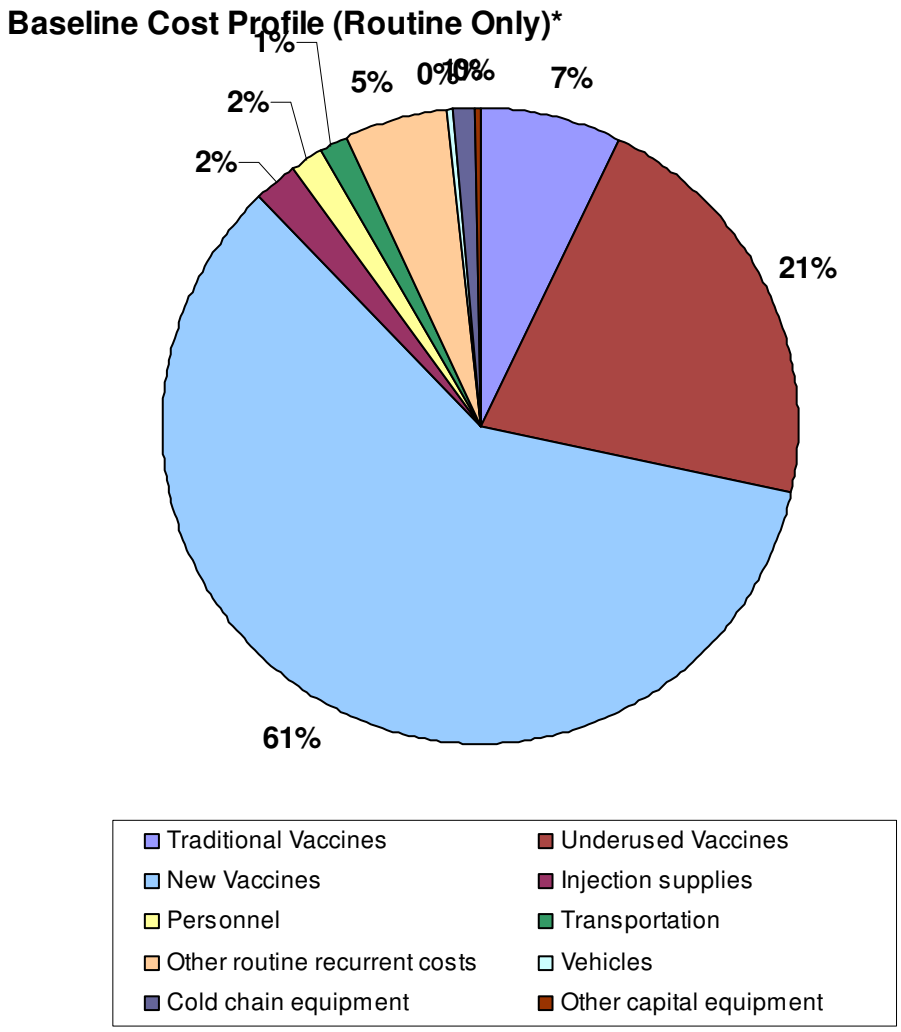
The table below illustrates the estimated costs of the different program activities to be carried out in the period of the multi year plan.

8.2. Cost Analysis and Financing

Under this section, we are going to analyze costs and financing as follows:

- Cost and financing for the baseline year (2010)
- Cost and financing for the life cycle of cMYP
- Gaps analysis
- Strategies for Finance sustainability

8.2.1. Cost and financing for the baseline year (2009)



IX. ANNUAL EPI PLAN FOR 2011

								Available funding per partner					Gap
Components	**Strategies**	**Priority Activities**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Cost estimates**	**Gov**	**USAID**	**GAVI**	**WHO**	**UNICEF**	
Vaccination service delivery	Implement / reinforce / sustain Reaching Every District (RED) approach in all districts	- Organize micro planning workshops for health districts	X				20,000	10,000			10,000		0.0
			X	X	X	X	35,000	15,000			25,000		
		- Supervise	X	X	X	X	250.000			250.000			
		- Reinforce outreach	X	X	X	X							
		- Strengthen monitoring and use of data for action	X	X	X	X	14,500	9,000			5,500		
		- Reinforce link with the community	X	X	X	X	120,000						120,000
		- Provide incentives to health workers and community health workers (volunteers)											
	Preparedness for rotavirus vaccine introduction	- Develop a rotavirus vaccine introduction plan		X			5,000	5,000					
				X	X		674,520	357,778		116,742	200,000		
		- Develop a proposal for rota vaccine introduction to submit to GAVI Alliance			X	X							
		- Implement the rota vaccine introduction plan				X							

								Available funding per partner						Gap
Components	**Strategies**	**Priority Activities**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Cost estimates**	**Gov**	**USAID**	**GAVI**	**WHO**	**UNICEF**	
	Introduction of HPV vaccine	- Develop a HPV vaccine introduction plan - Training of health workers - Conduct a catch-up vaccination campaign	X X	 X	 X	 X							
Advocacy, Communication / Social mobilization	ICC strengthening	- Engage additional potential partners - Hold, on a monthly basis, technical ICC meetings	X X	X X	X X	X X	0 0	0 0		0 0	0 0	0 0	
	Development and implementation of integrated plan of communication including routine, supplementation and surveillance activities .	- Develop and implement, with other programs, communication integrated plan - Reinforce communication activities within the EPI program - Organize meeting with NGOs and associations, including community health workers, to discuss their participation in immunization activities .	 X X	X X X	X X X	 X X	25.850 5,000 15,800	12.350 5,000 15,800		10.000			3.500

								Available funding per partner					Gap
Components	**Strategies**	**Priority Activities**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Cost estimates**	**Gov**	**USAID**	**GAVI**	**WHO**	**UNICEF**	
	Advocacy with respect to decision makers	Plan and hold meeting with Pharmacy directorate of MOH for NRA reinforcement			X	X	0						
	Advocacy with respect to ICC partners in order to influence the MOH	Plan and hold meetings with MOH for human resource reinforcement at national EPI level			X	X	0						
Surveillance of the EPI targeted diseases	Integrated disease surveillance and response	- Strengthen active surveillance in AFP, measles, TMN, Hib and pneumoccus disease in all districts	X	X	X	X	91.600			30.000	61.600		
		- Convene monthly meetings with focal points for AFP surveillance	X	X	X	X	0						
	Reinforce links between laboratories for different conditions (polio and measles) and immunization program	- Strengthen collaboration between the laboratories for polio and measles	X	X	X	X	0						
		- Provide sufficient reagents	X	X	X	X	22.500			22.500			
		- Reinforce the	X	X	X	X	0						

								Available funding per partner					Gap
Components	**Strategies**	**Priority Activities**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Cost estimates**	**Gov**	**USAID**	**GAVI**	**WHO**	**UNICEF**	
		capacity of lab workers											
	Reinforcement of Bacterial disease surveillance (pneumococcus, Haemophilus b, meningococcus)	- Train health workers for case definition of pneumococcal disease to be reported	X	X			71.960	20.000		40.000	11.960		
			X	X	X	X	22.450			22.450			
		- Increase the sentinel sites for pneumococcal disease surveillance (1 by province)	X	X	X	X	10.000				10.000		
		- Provide reagents to additional identified lab	X				10.000	10.000					
		- Update the reporting tools which include pneumococcal disease and train them on how to complete the tools											

								Available funding per partner					Gap
Components	**Strategies**	**Priority Activities**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Cost estimates**	**Gov**	**USAID**	**GAVI**	**WHO**	**UNICEF**	
	Active case-based surveillance for measles by the way of integrated surveillance for vaccine-preventable diseases	- Strengthen active surveillance for measles in all districts - Conduct monthly meetings for surveillance focal points - Develop district level emergency preparedness and prevention plans - Strengthen analysis and use of data at all levels	X X X X	X X X	X X X	X X X	14.500 0 5.000 5.000	9.000 5.000			5.500 5.000 		
	Capacity-building for EPI preventable disease surveillance and AEFI	- Train new district focal points in AEFI, AFP, measles, MNT and pneumococcocal disease	X	X	X	X	25.000	5.000		10.000			10.000
Vaccine supply, cold chain, logistics	Regular high quality vaccine supply at all levels	- Order and supply vaccines to all districts - Provide to all health centers with motorbikes - Provide country with growth monitoring cards	X X X	X X 	X X 	X X 	4.029.866 200.000 40.345	1.293.366 40.345		2.736.500			 200.000

								Available funding per partner					Gap
Components	**Strategies**	**Priority Activities**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Cost estimates**	**Gov**	**USAID**	**GAVI**	**WHO**	**UNICEF**	
management	Increase cold chain storage capacity to accommodate rotavirus vaccine	- Purchase additional refrigerators, cold boxes and vaccine carriers for districts and health centers	X	X			$431,378						
	Regular auto-disable (AD) syringes supply to all districts	- Provide AD syringes to all districts - Build 5 incinerators for 5 hospitals	X X	X X	X X	X X	197.873 20.000	197.873		 20.000			
	Improvement of means of transportation at the central level	Provide 1 additional 4x4 vehicle to the national EPI		X			35.000			35.000			
	Vaccine management improvement	- Train health workers in vaccine stock management - Provide appropriate management tools at district level - Supervise teams at district and health facility levels - Monitor vaccine wastage	X X X X	X X X X	X X X X	X X X X	60.000 23.540 60.000 10.500	 10.500		60.000 13.040 30.000	 30.000 10.500		
	EPI management improvement at all levels	- Hold technical ICC meeting on a monthly basis - Develop on job-training plan - Implement the plan for all the district	X X X	X X X	X X X	X X X	0 0 20.000			 20.000			

								Available funding per partner					Gap
Components	**Strategies**	**Priority Activities**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Cost estimates**	**Gov**	**USAID**	**GAVI**	**WHO**	**UNICEF**	
Program management and Capacity building		health workers - Supervise districts and health facilities - Train health workers in EPI management - Improve the management of data through continuing education, monitoring, and feedback to all levels	X X X	X X X	X X X	X X X	22.500 22.450 10.000	22.500		22.450	10.000		
	Analyses to improve efficiency, effectiveness, access, and use of services	- Conduct operational researches (OR) on integrating other health interventions with immunization	X	X	X	X	72.500			72.500			
	Maintain existing links and explore integration of immunization services with other high impact health interventions	- Integrate vitamin A supplementation into routine vaccination - Collaborate in the implementation of IMCI through routine vaccination - Monitor performance with integrated	X X X	X X X	X X X	X X X	0 0 31.990			31.990			

								Available funding per partner					Gap
Components	**Strategies**	**Priority Activities**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Cost estimates**	**Gov**	**USAID**	**GAVI**	**WHO**	**UNICEF**	
		interventions											