REPUBLIC OF BURUNDI

MINISTER OF PUBLIC HEALTH AND AIDS CONTROL
GENERAL DIRECTORATE OF PUBLIC HEALTH
DIRECTORATE OF HEALTH SERVICES AND PROGRAMS
EXPANDED PROGRAMME ON IMMUNIZATION

2011-2015
COMPREHENSIVE MULTI-YEAR PLAN
FOR THE
EXPANDED PROGRAMME ON IMMUNIZATION
IN BURUNDI

unicef

World Health Organization

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AD syringes	: Auto-disable syringes
AEFI	: Adverse Effects Following Immunization
AFP	: Acute Flaccid Paralysis
ARI	: Acute Respiratory Infections
BCG	: Bacillus of Calmette and Guérin
BDS	: Bureau de District de Santé [District Health Office]
BPS	: Bureau Provincial de Santé [Provincial Health Office]
CAM	: Carte d'Assurance Maladies [Medical Assistance Card]
CC	: Cold Chain
CDC	: Centres for Disease Control and Prevention
CHW	: Community Health Worker
cMYP	: Comprehensive Multi-Year Plan
CNC	: Comité National de Certification [National Certification Committee]
CNCA	: Comité National de Coordination des Aides [National Committee for the Coordination of Aid]
CNEP	: Comité National des Experts Polio [National Committee of Polio Experts]
CPSD	:Cadre de partenariat de la Santé et le Développement [Partnership Framework for Health and Development]
CSO	: Civil Society Organization
DPML	: Département de la Pharmacie, du Médicament et des Laboratoires [Department of Pharmacies, Medicines and Laboratories]
DTP	: Diphtheria-Tetanus-Pertussis Vaccine
DTP-HepB-Hib	: Pentavalent Diphtheria, Tetanus, Pertussis, Hepatitis B and *Haemophilus influenzae* Type B Vaccine
EPI	: Expanded Programme on Immunization
EPISTAT	: Epidemiology and Statistics
FOSA	: Formation Sanitaire (Health Care Facility)
GAVI	: Global Alliance for Vaccines and Immunization
GCP	: Groupe de Coordination des Partenaires [Partner Coordinating Group]
GDP	: Gross Domestic Product
GIVS	: Global Immunization Vision and Strategy
GOV	: Government
GPEC	: Recensement Général de la Population et de l'Habitat [General Population and Housing Census]
GSC	: Groupe Spécial de Confinement [Special Containment Group]
HC:	: Centre de Santé [Health Centre]
HDI	: Human Development Index
HIV/AIDS	: Human Immune Deficiency Virus/Acquired Immune Deficiency Syndrome
IC	: Immunization Coverage
ICC	: Interagency Coordinating Committee
IEC	: Information, Education and Communication
ITN	: Insecticide-Treated Mosquito Nets
MCHW	: Mother and Child Health Week

MPS	: Minimum Package of Services
MSPLS	: Ministère de la Santé Publique et de la Lutte contre le Sida [Ministry of Public Health and AIDS Control]
MTEF	: Medium-Term Expenditure Framework
NGO	: Non-Governmental Organization
NHIS	: National Health Information System
NHP	: National Health Policy
NID	: National Immunization Days
NNT	: Neonatal Tetanus
NPHD	: National Plan for Health Development
NRA	: National Regulatory Authority
OPV	: Oral Poliomyelitis Vaccine
PAP	: Priority Action Plan
RED	: Reach Every District
SFPR	: Strategic Framework for Poverty Reduction
TT	: Tetanus Toxoid
UMC	: University Medical Centre
UNDP	: United Nations Development Programme
UNICEF	: United Nations Children's Fund
USAID	: United States Agency for International Development
US$	: United States Dollar
Vit A	: Vitamin A
VVM	: Vaccine Vial Monitor
WHO	: World Health Organization
WPV	: wild poliovirus

The primary mission of the EPI is to protect all children from vaccine-preventable diseases. Burundi started its programme in 1980 with vaccines against diphtheria, tuberculosis, pertussis, measles, poliomyelitis, and tetanus. This programme has experienced great success throughout the country, to the extent that the country has attained immunization coverage of over 80% for all of these antigens in under ten years. In 2004, two new vaccines were introduced, namely the viral hepatitis B vaccine and the *Haemophilus influenzae* type B vaccine, consisting of a series of two doses. In 2005, these were replaced by the single-dose pentavalent vaccine, which combined the liquid DTP-Hep B vaccine with the lyophilized Hib vaccine.

The principal factors leading to increased immunization coverage are as follows:

- The existence of a large network of health centres (on average, 80% of the population live within a 5 km radius of health centres).
- The existence of large network of usable roads, which facilitates the population's access to health care facilities in addition to supervision and supplies.
- Over 90% of the country's health facilities provide routine immunization services.
- High levels of health service usage.
- Free immunization for children and pregnant women.
- The Mother and Child Week has been held semiannually since 2003.
- Integration of EPI activities with other programmes (vitamin A, ITNs, deworming, etc.).
- Existence of a community network (grassroots organization and CHWs).
- Functional cold chain at all levels.
- Community involvement in immunization services.

Among the major challenges that the EPI must face are:

- Control of measles outbreaks in districts with lower immunization coverage.
- Gaining control of the overall drop-out rate at the national level.
- Poor forecasting and estimations of EPI needs at the intermediate and peripheral levels, leading to frequent vaccine stock-outs, which in turn results in a large number of missed opportunities.
- Low rates of pentavalent-III immunization coverage (under 80%) in 4 out of 45 health districts in 2010.
- Low rates of measles immunization coverage (under 80%) in 10 health districts in 2010.
- Non-polio AFP rates in fewer than 2 out of 100 000 children under 15 years in 26 district in 2010.
- Frequent fuel shortages: 2 in 2010.
- Absence of a national waste management policy (currently being formulated).
- Absence of a monitoring and evaluation plan.

This comprehensive multi-year plan (cMYP) specifies the ways and means to confront the challenges that accompany the following objectives:

1. to improve the efficacy of programme management and coordination;
2. to plan by introducing micro-planning to the decentralized facilities;
3. to attain at least a 35% government share in the EPI budget by 2015;
4. to achieve an IC rate for all antigens of at least 80% in 100% of the health districts;
5. to achieve an overall drop-out rate under 10% in 100% of HDs by 2015;
6. to achieve 40% immunization coverage for the third dose of the 13-valent pneumococcal

8. to introduce the rotavirus vaccine in 2013;
9. to equip 100% of HDs with computer equipment and vaccine management software by 2015;
10. to have 100% of the BDSs properly reporting AEFIs by 2015;
11. to have 100% of the BDSs providing effective vaccine management by 2015;
12. to have an operational cold chain at all levels by 2015;
13. to equip 100% of districts with efficient incinerators by 2015;
14. to keep the EPI target disease surveillance indicators above regional norms.

This cMYP refers to the 2006-2015 Global Immunization Vision and Strategy (GIVS) and has the goal of helping those in charge to plan their immunization programme. This document is the outcome of work completed by a multidisciplinary team composed of focal points from the Ministry of Finance, the Ministry of Planning and Development, EPI partners such as UNICEF and WHO, civil society, and staff of the Ministry of Health in collaboration with the Interagency Coordinating Committee (ICC).

This cMYP contains:

- an internal and external situation analysis of the EPI;
- an overview of problems and priorities;
- objectives;
- scenarios and strategies to ensure the programme's financial sustainability;
- a schedule of the primary activities for the entire duration of the plan;
- a section on the assessment of costs and funding;
- a monitoring and evaluation plan.

Implementation of this action plan requires strong involvement by the Government and its domestic and foreign partners, which primarily refers to an increase in their financial contributions to the EPI.
The overall budget of this cMYP is ninety-four million, eight-hundred thirty-one thousand, four hundred eighty-five US dollars (**94 831 485 US$),** broken down as follows:

- funding provided by the Government and its traditional partners: US$ 31 839 024
- probable funding: US$ 56 685 201
- funding gap: $US 6 307 260

The funding strategy adopted for this cMYP makes the following favorable assumptions:

- the firm, strong commitment of the Government to health (resulting in the allocation of a higher percentage of public expenditures to the sector);
- economic growth, which is estimated at 5% per year on average;
- a performance-based health funding strategy.

The successful implementation of this plan will primarily depend on the political engagement of national and international development partners, including civil society. An annual operating plan with monitoring and evaluation mechanisms will be developed every year for effective implementation of the plan.

Burundi started its programme in 1980 with vaccines against diphtheria, tuberculosis, pertussis, measles, poliomyelitis, and tetanus. This programme experienced great success throughout the country, to the extent that the country attained coverage of over 80% for all of these antigens in under ten years.

In 2004, two new vaccines were introduced, namely the viral hepatitis B vaccine and the *Haemophilus influenzae* type b vaccine consisting of a series of two doses. Over the course of 2005, these were replaced by the single-dose pentavalent vaccine, which combined the liquid DTP-Hep B vaccine with the lyophilized Hib vaccine.

In 2009, Burundi submitted a proposal for GAVI support for the introduction of the pneumococcal vaccine, which was approved in 2010; introduction of the vaccine is planned for July 2011.

Beginning in 2003, improvements in immunization coverage were observed and by 2008, performances were satisfactory since national immunization coverage for the third dose of pentavalent vaccine has already exceeded 90%, and 91% of districts have surpassed 80% coverage for this antigen.

In line with its goal to protect all children from vaccine-preventable diseases, Burundi plans to introduce the rotavirus vaccine and the second dose of the measles vaccine as part of the routine EPI throughout the country in 2012. This is the background against which this multi-year plan has been updated for the 2011-2015 period to include all of the planned innovations, such as the papillomavirus vaccine in 2014 and the meningococcal conjugate vaccine in 2015. Other immunization innovations could be introduced if they become available (such as a malaria or HIV vaccines).

The present multi-year plan encompasses all of the activities to be performed during this period. It is focused on the following:

- situation analysis;
- strengths, weaknesses, opportunities and threats;
- high-priority issues;
- objectives;
- strategies;
- major activities;
- a timeline;
- cost and funding analysis;
- funding and implementation strategies;
- monitoring and evaluation.

In order for this plan to be successfully implemented, it requires the involvement of the country's top officials, the technical and financial support of the Government and all of the partners, the determination of health care personnel, and the support of the administration, collectivities/civil society and the community.

I.1 Geography

Burundi is a landlocked country located in eastern central Africa. Its land area is 27 834 km^2. It is bounded to the north by Rwanda, to the south and east by Tanzania and to the west by the Democratic Republic of the Congo.

I.2. Demographics

According to the provisional results of the general population census performed in August 2008, the population of Burundi is estimated at 8 057 574 inhabitants with a growth rate of 2.4%. At this rate of growth, the population in 2010 is estimated to be 8 444 784. One of the principal characteristics of this population is that it is rural (over 90%) and very young with a high birth rate (44.6% under the age of 15 and 6.2 children per household) and a population density estimated at 318 inhabitants per km^2 in 2010. Burundi is thus categorized as one of the most densely populated African countries.

I.3 Social, political and economic background

I.3.1. Political/administrative background

Burundi is a republic with a fully decentralized administration. It consists of 17 provinces, 129 communes subdivided into 333 zones, 2956 registered *collines* (hills) and 104 neighborhoods in the town of Bujumbura. Each registered colline is administered by a colline chief, who himself is assisted by the heads of 10 households, whereas in the Town of Bujumbura, each neighborhood is under the direction of a neighborhood chief who is assisted by the heads of 10 households. The EPI relies on this administrative structure to carry out communication and social mobilization activities.

From a political point of view, Burundi has been in a state of armed conflict for over a decade, making every aspect of the nation's life dysfunctional. The current social, economic and political situation bodes well for a gradual consolidation of the peace process.

I.3.2. Macroeconomic and social background

The socio-economic situation in the country is currently characterized by a sharp deterioration of the population's living conditions after more than a decade of armed conflict fueled by ethnic divides. These conflicts provoked a series of negative consequences that undermined the economy of the country and hindered the development of the social and economic sectors. This led to deep economic imbalances, especially a deterioration of the exchange rate, a balance of payments that has remained chronically negative and a rate of inflation that has continued to decrease very significantly, reaching a rate of 10.5% of the GDP in 2009. The 2009-2012 macroeconomic projections show GDP growing from 4.5% to 5.4%, whereas the inflation rate should stabilize at 5% in 2012. The table below shows the evolution of the GDP since 2000.

Period	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
GPD at factor cost	**249.5**	**256.5**	**270.9**	**264.7**	**279.7**	**281.6**	**297.0**	**307.5**	**321.7**	**333.0**
Indirect tax income (minus subsidies)	22.1	20.7	18.6	21.3	20.1	20.8	21.2	22.0	22.4	22.9
GDP at market cost	**271.6**	**277.2**	**289.5**	**286.0**	**299.8**	**302.4**	**318.2**	**329.4**	**344.1**	**355.9**

Source: MPDC/Macroeconomic Planning Unit

Socially, the increasing poverty has left the population of Burundi with limited access to basic social services. The gross enrollment ratio (GER), which reached 67.8% in 1993, fell to 42% in 1996. After the government intervened with tuition subsidies for primary education, this ratio reached 134.6% by the end of 2010. This is explained by the fact that school matriculations consist of children of enrollment-eligible age (7 years) and those past the age of enrollment (>7 years).

Likewise, the proportion of households living below the poverty line doubled following the crisis, rising from 35% in 1993 to 68.5% in 2004. This trend continues to affect households, 68% of which are living in extreme poverty. The HDI (monetary), which was at 0.351 in 1991, rose to 0.384 in 2006 and 0.400 in 2010. Thus, Burundi is classified as 169th worldwide according to the sustainable human development index[1].

Per capita income dropped from 149.3 US$ in 1993 to 83 US$ in 2006[2]. Although a slight increase in GDP was recorded at the end of 2009 (140 US$: 2010 Burundian economy), the consumer price index continues to rise for households following the fluctuations in the price of fuel on the world market, thus resulting in a decline in the Burundian population's purchasing power.

In order to mitigate these challenges, the Government has drafted and adopted the Strategic Framework for Poverty Reduction [3] (2007-2010 SFPR) in which health is considered a priority, particularly immunization (i.e., the third axis pertaining to the development of human capital). As part of its continuing implementation of activities in the fight against poverty, the Government is in the process of drafting a new 2011-2015 SFPR, which still holds health as one of its priorities.

Immunization is also included in the National Health Policy (2005-2015) and the National Health Development Plan (2011-2015 NHDP), which is in the process of finalization, specifically as part of its third objective, which emphasizes the reduction of maternal and infant mortality.

I.3.3. Funding the health sector with a focus on the EPI.

I.3.3.1. Funding the health sector

Funding sources for the health sector are the State (21%), development partners (47%), Civil Service Health Insurance or MFP (6%) and the community (25%). (Source: 2009-2011 MTEF)

In 1993, foreign aid allocated to the health sector sharply decreased, and the type of aid changed from development aid to emergency humanitarian aid. With the return to peace, there has been a

budget allocations to the health sector, excluding public and development aid.

Table 2: Evolution of the regular budget of the Ministry of Public Health from 2002 to 2010 in thousands of US$

Year	National budget	Health budget	%
2002	172 158	4 343	2.52
2003	184 172	4 001	2.17
2004	244 925	4 822	1.97
2005	326 195	5 055	1.55
2006	414 751	16 986	4.10
2007	428 828	13 003	3.03
2008[4]	306 250	25 218	8.23
2009	689 880	35 696	5.17
2010	696 016	51 219	7.40

Source: 2002-2010 Public Finance Laws

The share of the annual State budget allocated to the Ministry of Health increased nominally, whereas in actual terms, this budget decreased slightly due to inflation. This budget is primarily devoted to the salaries of health personnel, and to the maintenance of minimal services. With these two items occupying 94.6% of the Ministry's total budget, the investment budget only occupies 5.4% of the total. In relation to the incoming financial flow to the health sector, health programmes are funded by the development partners.

The health-care funding system is not effective, which is shown through the following issues:

At the Government level, the problems noted are related to insufficient national resources in the face of the growing needs seen in all public sectors, especially the health sector. Due to the availability of resources from the HIPC initiative, the State's share of the health care budget rose from 3% in 2007 to 5.17% in 2009, and then to 7.4% in 2010. Nevertheless, the health sector policy aims to procure 15% of the national budget by 2015 for expenditures to improve health care services, particularly immunization.

Within public health care facilities:
- lack of qualified, motivated personnel (very low wages);
- inadequate medicines to cover needs, thereby resulting in frequent stock-outs;
- unsatisfactory quality of care;
- very low health care prices in relation to the actual cost of providing care against a background of insufficient subsidies;
- the weakness of the cost recovery system;
- lack of supplies.

At the population level:
- difficulties in accessing health care linked to high costs;

- problems providing care for indigents;
- dissatisfaction among beneficiaries vis-à-vis the quality of services: lack of medicines, poor customer service.

Since May 2006, using the funds from the HIPC initiative, the Government has fully subsidized health care for children under 5 years of age and women who give birth in approved public health care facilities, including cesarean births, as well as treatment for malaria, which is the principal cause of morbidity and mortality.
Starting in 2009, the MSPLS introduced performance-based financing to the intermediate and peripheral levels, which significantly improved the services provided by health-care personnel, and the quality of health care.

I.3.3.3. Budget process

The EPI drafts the comprehensive multi-year plan and then submits it to the Partnership Framework for Health and Development (CPSD) for approval[5]. At the beginning of each year, a cMYP implementation action plan is prepared by the EPI and also submitted to the CPSD for approval. Implementation and monitoring & evaluation of this plan are provided by EPI units.
With regard to financial management procedures, funding requests for the activities contained in the annual action plan are made by the EPI, which then submits them for approval to the Director of Health Services and Programs, the Director General of Health, the Director General of Resources and lastly to the Minister's cabinet. This process is too long and cumbersome for a programme that is sometimes called upon to perform urgent activities, particularly cold chain maintenance.

I.4. Gender profile

According to the preliminary results of the 2008 population census, the female population represents approximately 51.1% of the Burundian population. The nation's economy is dominated by agricultural production by rural households, whose underlying strength is fundamentally provided by women. It follows from this observation that women actively participate in development and poverty reduction process.
With the installation of the Government chosen in the 2005 elections, representation of women increased from 4% to 30% in the institutional and decision-making bodies of the country.

I.5. Health care background

I.5.1. Organization of the health care system.

The health care system of Burundi is made up of 3 levels:
The national level, which is responsible for defining the health policy, preparing intervention strategies, planning, administering and coordinating the health sector, defining quality standards, and providing monitoring and evaluation of these standards. It includes: the Ministerial Cabinet, the Inspectorate General of Public Health, the Directorate General of Public Health, the

bodies of various programs and health care services including the EPI.

The intermediate level includes 17 health provinces (PS). The health provinces are responsible for coordination and monitoring/evaluation of health activities at the provincial level.

The peripheral level includes 45 health districts (DS) as well as all the health centres (CDS) and district hospitals distributed throughout the national territory. The HDs are responsible for implementing the national policy (supervision, continuing education, procurement, etc) through the peripheral facilities. The administrative function is performed by chief district physicians and health centre owners, who are responsible for planning, organizing and managing all of the activities of these facilities. The Government is in the process of promoting a policy of community involvement in the management of health centres through health committees.

The same pyramid configuration is found in the organization of the care network, which consists of 3 levels:

- the primary care level, consisting of health centres, the gateway into the formal national health care system, and district hospitals, which constitute the first referral level;
- secondary care hospitals;
- national tertiary care hospitals.

An analysis of the Burundi health map shows that at the end of 2010, the country has 735 functional health centres, 72% of which are public sector and denominational, and 28% are private sector. Physical access, in absolute terms, is satisfactory, since 80% of the population is geographically within less than 5 km from a health centre.

Nevertheless, a situational analysis of the health care infrastructure shows significant disparities in their geographical distribution depending on their setting (rural and urban). It should be noted that most of the facilities that had been damaged and/or looted during the war have been renovated and are now operational; other new facilities are under construction.

I.5.2. Health profile

At the beginning of June 2004, the National Forum on General Health Conditions, organized by the Government, led to the creation of the 2005-2015 National Health Policy (NHP) and the 2006-2010 National Health Development Plan (NHDP). An analysis of the situation of this plan showed that following issues merit special attention from health stakeholders:

- Health conditions characterized by high morbidity/mortality in the general population, particularly in women and children under 5 years of age. According to EPISTAT data, the principal causes of mortality in children under the age of 5 in 2008 were, in decreasing order of importance: malaria (30%), pneumonia (12%), severe malnutrition (3%), diarrheal diseases (6%). Intestinal parasitosis is the fourth leading cause of visits to health care facilities and a major cause of anemia and malnutrition in children under 5.
- Very high maternal mortality, estimated at 886 per 100 000 live births, explained by a low rate of deliveries attended by a qualified provider, hemorrhages, post-partum infections, malaria, etc.
- High neonatal mortality observed in health facilities ranges from 100 to 120 per 1000 live births, with an average rate of 101 per 1000 live births.
- Poor access and low usage of health care services related to several factors:
    - poor performance of the national health care system;

morbidity from the leading five diseases is as follows:

- Malaria: 74%
- ARI: 13.0%
- Diarrheal diseases: 9.0%
- Ear infections in children under the age of 5: 2%
- Severe malnutrition: 1%

The principal risk factors to which the population is exposed are:

- Factors related to lifestyle and behavior;
- Factors related to the environment (shortage of safe drinking water, unhealthy environment, air pollution and overcrowded housing);
- Poverty.

Table 3: Principal development indicators

2010 Population	**8 444 784**	**Year and source**
GDP	140 US$ at start of 2010	2009 Burundian Economy
Women of Childbearing Age	23.70%	2008 EPISTAT
Pregnant women	5%	
Children 0 to11 months old	3.70%	
Children under the age of 5	17.90%	
Children under the age of 15	44.6%	
Fertility rate	6.0	
Under-five mortality rate	166/1000 live births	UNCEF 2009
Infant Mortality Rate	101/1000 live births	UNICEF 2009
Maternal Mortality Ratio	886/100 000 live births	2008 GPHC
Chronic malnutrition rate	46.00%	2007 Baseline Survey on Malnutrition
Overall acute malnutrition rate	5.6%	2007 Baseline Survey on Malnutrition
Underweight prevalence	35.0%	
Vitamin A deficiency	28% of children from 6 to 59 months	
Anemia in pregnant women	56%	
Life expectancy at birth	50.0 years	World Health Statistics 2010 WHO
Life expectancy in good health	37.9 years	
Annual population growth rate	2.4%	2008 GPHC
Overall enrollment ratio	134.6%	Ministry of Education 2009/2010 BEP Scholastic Statistics
Gross enrollment ratio for boys	99%	Ministry of Education 2009/2010 BEP Scholastic Statistics
Gross enrollment ratio for girls	99%	Ministry of Education 2009/2010 BEP Scholastic Statistics
Adult literacy rate	65.9%	2010 HDR
Geographic access to health care services	80%	
Population below the poverty line	81%	2010 HDR
Access to safe drinking water	72.3%.	2009 GHP Report
Latrine coverage	89%	

Source: Ministry of Planning and Community Development (MPDC)

The principal problems related to the health care system are as follows:

- difficulties in accessing health care linked to high costs;
- ineffectiveness of the medical assistance card (CAM);
- problem of providing care for indigents;
- dissatisfaction among beneficiaries vis-à-vis the quality of services: lack of medicines, poor customer service;
- lack of qualified, motivated personnel;

background of insufficient subsidies;
- deficiencies of the cost recovery system;
- inadequate supply channels;
- insufficient material and financial resources.

All of these problems have the following consequences:
- high morbidity and mortality within the population;
- very high maternal mortality;
- high neonatal mortality in health facilities;
- poor access and use of health care services;
- poor performance of the national health care system.

II. ANALYSIS OF THE EPI'S INTERNAL ENVIRONMENT

II.0. Introduction

The Expanded Programme on Immunization (EPI) debuted in April 1980 in the pilot medical sector of Muramvya, with support from the WHO, UNICEF and USAID. It then gradually expanded its coverage to include the entire country by May 1985.
Immunization of women of child-bearing age was added in 1986 to help eliminate neonatal tetanus. Then, in February 2003, vitamin A supplementation was introduced into routine immunization. Since 2004, the EPI's activities have included immunization for viral hepatitis B and *Haemophilus influenzae* type B.
The goal of the EPI in Burundi is to help reduce morbidity and mortality due to vaccine-preventable diseases. These include: tuberculosis, diphtheria, poliomyelitis, tetanus, pertussis, measles, viral hepatitis B, meningitis and pediatric pneumonia caused by *H. influenzae* type B.
EPI activities fall under the sector policy and the MSPLS's National Health Policy, which are in turn part of the SFPR and the MDGs.
In order to improve coordination between the Government and the development partners, and to advance the development process towards a sectoral approach, the Ministry of Public Health has implemented the Partnership Framework for Health and Development (CPSD). The ICC, responsible for coordinating the activities of the EPI0, plays a role within this framework.
The current cMYP is a revision of the previous 2010-2014 cMYP. This revision was motivated by the need to introduce vaccines for the second dose of MCV, as well as the rotavirus vaccine. It will cover the period from 2011 to 2015.

II.1. Operations of the EPI

The principal actions of the EPI are divided into two categories:
- the first covering the following 5 operations: providing services, logistics, supplying high-quality vaccines, communication and advocacy, and monitoring and evaluation;
- the second covering the following 3 support components: programme management, funding and capacity building.

Table 4: Immunization schedule in use by the EPI and included antigens

Antigen	Immunization period
BCG	At birth
OPV	Birth, 6 weeks, 10 weeks, 14 weeks
DTP–HepB-Hib	6; 10; 14 weeks
MCV	9 months
Vit. A	9 months then every 6 months up to 5 years
TT in pregnant women	TT1 at first contact, TT2 after 1 month, TT3 after 6 months, TT4 after 1 year, TT5 after 1 to 3 years.
TT in women of child-bearing age	TT1 at first contact, TT2 after 1 month, TT3 after 6 months, TT4 after 1 year, TT5 after 1 to 3 years.

Source: EPI

Between 1985 and 1993, evolution of immunization coverage was satisfactory and remained above 80%. Between 1993 and 2001, immunization coverage dropped from 80% to below 60% because of the crisis.

Since 2003, immunization coverage has progressed well, and quickly exceeded 90% for DTP3, which was confirmed by quality control audit of the data performed in 2006.

In 2010, the DTPHib/HepB3 immunization coverage is 96%, the overall drop-out rate (BCG^{6}-MCV) is 9%, whereas the specific DTPHib/HepB drop-out rate is equal to 3%.

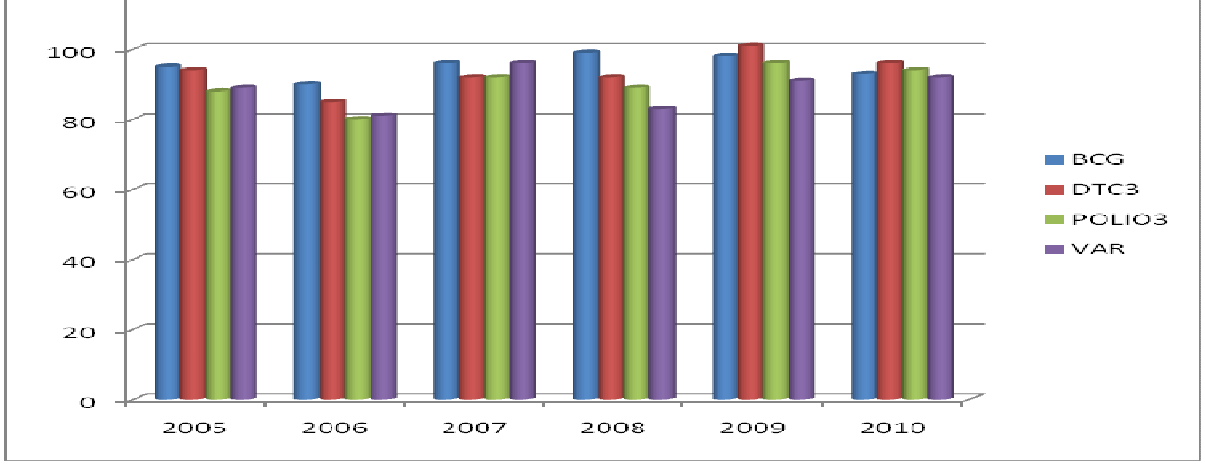
Wastage is monitored within the health care facilities that perform immunizations. The vaccine wastage rate and usage rate are indicated on the standardized monthly report form. But the rates calculated are not yet included in the health district database, which would have facilitated monitoring for the national level. This point will be taken into consideration during the standard tools and database review now underway.

Although DTPHib/HepB3 immunization coverage at the national level is satisfactory, 4 out of 45 health districts have not been able to achieve 80%.

National TT immunization coverage among pregnant women reached 94% at the end of 2010.

Lastly, although national measles immunization coverage in 2010 is 92%, 10 health districts have recorded immunization coverages below 80%.

Chart 1: Evolution of immunization coverage between 2003 and 2010



Source: 2010 EPI Annual Report

[Key:
BCG = BCG
DTC3 = DTP3
POLIO3 = OPV3
VAR = MCV]

The principal factors leading to improved immunization coverage are as follows:

- the existence of a large network of health centres (an average of 80% of the population live within a 5 km radius of the health centres).
- The existence of large network of usable roads, which facilitates the population's access to health care facilities in addition to supervision and supplies.
- Over 90% of the country's health facilities provide routine immunization services.
- High health service usage rates.
- Free immunization for children and pregnant women.
- The Mother and Child Week has been held semiannually since 2003.
- Integration of the EPI activities with other programs (vitamin A, ITNs, deworming, etc.).
- Existence of a community network (grassroots organization and CHWs).
- Existence of micro-plans at the intermediate and peripheral levels.
- Functional cold chain at all levels.

Community involvement in immunization services. Supplementary immunization activities organized to strengthen EPI performance. In particular, this includes the Mother and Child Health Week (MCHW), the polio National Immunization Days (NIDs) and the national measles follow-up campaigns. Response campaigns against measles outbreaks in certain districts are also organized.

Although highly capable, the EPI of Burundi nonetheless has certain weaknesses such as:

- dysfunctional coordinating bodies at the intermediate and peripheral levels;
- monitoring & evaluation and supervision guidelines that are not well-integrated or harmonized;
- no good system for tracking adverse effects following immunization (AEFIs);

II.1.2. EPI Logistics

II.1.2.1. Cold chain

The cold chain is functional at three levels: the national level, intermediate level and peripheral level.
The cold chain is functional at three levels: the national level, intermediate level and peripheral level.
At the central level, the EPI has three positive cold rooms and 18 freezers that take the place of the negative cold room.
The net vaccine storage capacity at the national level is estimated at 23 784 litres of positive storage and 3972 litres of negative storage for the entire duration of the cMYP. With the introduction of the rotavirus vaccine in 2013, the positive vaccine storage requirements (including the new vaccines) are rising from 34 334 litres in 2012 to 47 509 litres in 2013. In light of the fact that two vaccine deliveries are made per year, it is striking that the positive storage capacity is sufficient to accommodate all the vaccines of the EPI, including the rotavirus vaccine, as shown in the table below. The negative storage capacity is also adequate for two deliveries per year.
The cold chain equipment cited above receive routine maintenance on a periodic basis. Three emergency electric generators, with automatic start-up, will ensure that the cold chain will continue to function in the event of a power outage. The following tables illustrate the positive and negative capacities of the cold chain at the national level.

Table 5 : Capacity and cost (for positive storage)

Year	2010	2011	2012	2013	2014	2015
Total annual volume of vaccines in positive storage (litres)	18 742	25 342	33 646	42 694	51 242	54 532
Net available positive capacity in the cold chain (litres)	23 784	23 784	23 784	23 784	23 784	23 784
Number of deliveries	2	2	2	2	3	3
Difference (where applicable)	-14 413	-11 113	-6961	-2437	6703	5606

Table 6 : Capacity and costs (for negative storage) (Check the EPI log if the numbers have not changed)

Year	2010	2011	2012	2013	2014	2015
Total annual volume of vaccines in	3 604	3 640	3 552	3 508	3 544	3 582

Number of deliveries	2	2	2	2	2	2
Difference (where applicable)	-2 170	-2 152	-2 196	-2 218	-2 200	-2 181

At the intermediate level

Within the framework for implementing the health system decentralization policy, the health care reforms emphasize health districts. Activities that once were devolved to the BPSs, including vaccine management, are now performed by the BDSs.
Accordingly, the provincial vaccine warehouses located in the BPSs are going to be decentralized to the BDSs. Each BDS should have a district warehouse equipped with a refrigerator and a freezer.
With the introduction of the new pneumococcal vaccine in 2011, and based on the planned strengthening of the district-level cold chain described below, the country expected to acquire fifty (50) HBC-340 cold chain components in 2011, thereby equipping every health district with refrigerating units of sufficient capacity for the introduction of the rotavirus vaccine in 2013.
Furthermore, untimely country-wide power outages pose problems for maintenance of the cold chain and vaccine storage. To counter this difficulty, electric generators, formerly assigned to the BPSs, will be re-assigned to those health districts in which frequent power outages are reported.

Table 7: Current status of the cold chain and expansion plans at the BDS level

District	Net positive storage capacity in 2010	Number of MK404 (135 litres) refrigerators required from 2011 to 2015			
		1	2	3	Total
Bubanza	108	X			1
Mpanda	0		X		2
North	0			X	3
Centre	169				0
South	0	X			1
Kabezi	108	X			1
Rwibaga	0	X			1
Isale	0			X	1
Bururi	169				0
Matana	108	X			1
Rumonge	108		X		2
Cankuzo	0	X			1
Murore	0	X			1

Kibuye	0		X		2
Mutaho	0		X		2
Ryansoro	0	X			1
Buhiga	108		X		2
Nyabikere	0		X		2
Kayanza	372				0
Musema	0		X		2
Gohombo	0		X		2
Kirundo	108	X			1
Mukenke	0		X		1
Vumbi	0		X		2
Busoni	0		X		2
Makamba	264				0
Nyanza-lac	0			X	3
Muramvya	15	X			1
Kiganda	0		X		2
Muyinga	372				0
Gashoho	0		X		2
Giteranyi	0			X	3
Kibumbu	337				0
Fota	0	X			1
Ngozi	372				0
Kiremba	0			X	3
Buye	0		X		2
Rutana	264				0
Gihofi	0		X		2
Butezi	0	X			1
Kinyinya	0		X		2
Ruyigi	108				0
	0	**13**	17	**5**	62

Of the 735 health centres (CDS) open in 2011, 355 (48.2%) are equipped with a functional cold chain component of variable type (see Table 7.4); 530 health centres (72.1%) perform immunizations. Those that do not have refrigerators are supplied by the nearest CDSs. The health centres that are not yet equipped with refrigerating units will be upon the introduction of the pneumococcus vaccine in 2011. This peripheral-level cold chain expansion programme will continue until 2015.

Despite the existence of a functional cold chain and high storage capacity, most of the refrigerators run on petrol. This petrol is available on an irregular basis at the national level due to certain constraints, including ones pertaining to procedures for procurement, ordering, delivery, etc. This causes stock-outs and temporary interruptions of the cold chain.

Table 8: Status of the cold chain at the health centre level

	(CDS)			
BUBANZA	15	12	7	5
MPANDA	21	11	5	6
NORTHERN ZONE	36	9	6	3
CENTRAL ZONE	31	5	5	-
SOUTHERN ZONE	21	4	4	-
KABEZI	13	10	7	3
RWIBAGA	10	10	6	4
ISALE	34	18	6	12
BURURI	21	19	12	7
MATANA	23	20	10	10
RUMONGE	37	20	13	7
CANKUZO	12	12	6	6
MURORE	11	11	5	6
CIBITOKE	20	12	10	2
MABAYI	33	20	13	7
GITEGA	21	11	8	3
KIBUYE	11	11	5	6
MUTAHO	6	6	6	-
RYANSORO	11	11	7	4
BUHIGA	10	10	10	-
NYABIKERE	11	11	8	3
KAYANZA	16	10	8	2
MUSEMA	12	11	7	4
GAHOMBO	12	12	6	6
KIRUNDO	14	12	5	7
MUKENKE	9	9	6	3
VUMBI	11	11	5	6
BUSONI	9	9	5	4
MAKAMBA	23	17	12	5
NYANZA-LAC	20	13	8	5
MURAMVYA	12	11	8	3
KIGANDA	8	7	6	1
MUYINGA	20	16	8	8
GASHOHO	11	10	9	1
GITERANYI	10	9	8	1
KIBUMBU	15	12	12	-
FOTA	10	10	10	-
NGOZI	28	15	9	6
KIREMBA	14	14	7	7
BUYE	10	10	8	2
RUTANA	16	16	12	4
GIHOFI	20	16	15	1
BUTEZI	8	8	8	-
KINYINYA	9	9	7	2
RUYIGI	10	10	7	3
Total	**735**	**530**	**355**	**175**

The EPI has its own means of providing supplies and supervision. However, the EPI's fleet is very old and needs replacement.
The operational level is also equipped with supply and supervisory vehicles to ensure that activities are functioning properly. With the Government's policy of reducing the number of State service vehicles to a minimum in order to minimize the corresponding expenditures, the intermediate level's car fleet of is at risk of being reduced; it will become necessary to resort to renting for supply and supervisory activities.

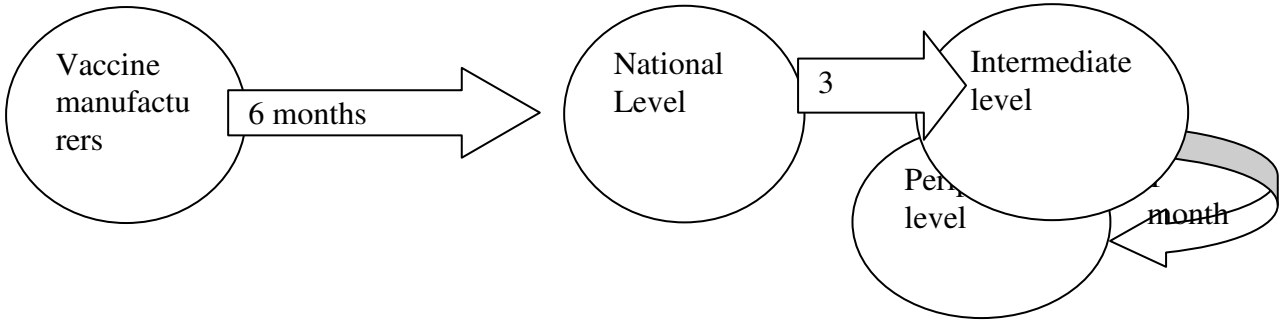
II.1.2.4. Injection Safety

In 2001, the Ministry of Public Health instituted "a national policy on injection safety," that includes the introduction and use of AD syringes, safety boxes, surveillance of adverse effects following immunization (AEFIs) and safe injections.
Currently, immunizations are administered using AD syringes in all health care facilities.
Waste is destroyed by burning and burial, since most health facilities do not have functional incinerators. The few incinerators in use in certain health facilities do not meet the required standards for appropriate destruction of biomedical waste. In fact, recommended temperatures for destroying glass and needles are not reached.
Nevertheless, some hospitals have modern incinerators with more or less comprehensive waste elimination. This is the case at the hospitals in Ngozi, Muramvya, Bururi and the Prince Régent Charles Hospital. The incinerators at the Prince Régent Charles and Ngozi Hospitals are operational but are used very infrequently due to a lack of fuel. The incinerators in Bururi and Muramvya are experiencing slight break-downs in addition to needing fuel.
In light of this lack of capacity for biomedical waste destruction at the national level, the present cMYP intends to provide all the BDS hospitals with standards-compliant incinerators.
In addition, the lack of technicians trained in the use of the incinerators represents a major handicap. The capabilities of technicians to use and maintain these incinerators will be improved.

II.1.3. Vaccine Procurement and Quality

II.1.3.1. Vaccine procurement

According to the projections included in the Programme's action plan, traditional vaccines and immunization supplies are ordered and paid for by UNICEF.
The Government, through the Vaccine Independence Initiative, participates in an agreement to co-finance new vaccines along with GAVI.
Vaccines are procured by air, and received by a team of EPI logistics personnel at Bujumbura Airport. The first inspection consists of verifying the documents that accompany the vaccines, the physical condition of the cartons, the cold chain number and indicator. These vaccines are then sent to the EPI for storage in cold rooms or freezers. Temperatures are read twice a day, thereby verifying the status of the cold chain.
At the national level, supplies are delivered twice a year, whereas at the intermediate and peripheral levels, supplies are delivered every 3 months and every month, respectively, as shown



Supplies provided to the provinces are based on distribution plan pre-established at the national level as well as on past months' consumption patterns. Vaccines and immunization supplies at the national level are transported to the intermediate level in vehicles of the health provinces and districts. The vaccines are placed in cold boxes in order to respect the cold chain.
Distribution from the intermediate level to the peripheral level is performed by the vaccinators from the health centres, who transport the vaccines in vaccine carriers. Upon their arrival at the health centre, vaccines are kept in gas-powered refrigerators.

II.1.3.2. Vaccine Management and Quality

Vaccines are arranged in cold rooms following the second inspection, which consists of verifying, carton by carton and box by box, the ice packs, lot release certificate, the 3M card, lot number, expiration date and the condition of the VVM. The national vaccine management system is computerized. The quantities are input into a computer database and on inventory cards.
At the intermediate level, the vaccines are kept in refrigerators and freezers prior to distribution to health centres. The presence of temperature reading cards (twice a day) on the refrigerators enables proper monitoring of the cold chain.
The cold chain is monitored by recording temperature readings twice a day on the appropriate card. In case of doubt, vaccine quality control is organized abroad with assistance from the partners.
Effective implementation of multi-dose vial policy is one of the strategies implemented to reduce vaccine wastage and improve the quality of immunization services. Strategies to lessen vaccine wastage will be strengthened, such as wastage monitoring from the peripheral level (CDS) to the central level; the training of all personnel involved in immunization, and vaccine distribution, while also undertaking proper storage measures, such as cold chain maintenance.
For each lyophilized vaccine, an appropriate diluent is used to comply with immunization quality standards.
The use of the Vaccine Vial Monitor (VVM) for monitoring the vaccine cold chain at the intermediate and peripheral levels ensures good vaccine quality.
In the case of GAVI support, new vaccines, injection supplies and safety boxes will be procured through UNICEF supply channels in collaboration with the GAVI secretariat. For traditional vaccines, the UNICEF supply line will remain unchanged.

Surveillance of Adverse Effects Following Immunization (AEFI) is performed as follows: an AEFI reporting form is drafted, adopted and distributed to all levels. It is updated on a regular basis to account for the introduction of new vaccines.
AEFI surveillance is conducted at three levels of the health care system:
If health care personnel detect a case at peripheral level, they treat the case according to the means at their disposal, complete the reporting form and send it to the appropriate hierarchical level (BDS). If the situation is serious and cannot be handled on site, the case is immediately referred to the district hospital. This hospital informs the EPI, which in turn dispatches a team for investigation.
Furthermore, at the central level, the EPI Directorate analyzes the reporting forms and drafts a report to be used as a means for preventing rumors and in case other cases arise. At the institutional level, there is a national regulatory body (within the Department of Pharmacies, Medicines and Laboratories: DPML). However, this body is beset with too many structural problems to function effectively.

II.1.4. EPI Communication

Social mobilization and advocacy currently constitute one of the cornerstones for the success of the National Immunization Programme's interventions. The EPI, in synergy with the National Health Promotion Department, engages in social mobilization activities to promote immunization. Likewise, the involvement of the administration and community health workers at all levels is a force for mobilizing the population toward immunization.
Civil society organizations (CSOs) have gradually been established and become increasingly active participants in immunization activities. Upon introduction of new vaccines, these organizations are called upon to raise awareness and mobilize communities toward acceptance of the innovation(s) in question. Four of these civil organization have already obtained a funding from GAVI to strengthen immunization activities. An integrated communications plan will be drafted by the end of 2011 and will emphasize the various communication strategies to promote immunization.

II. 1.5 Surveillance and accelerated disease control

II.1.5.1.Integrated surveillance of EPI target diseases

Surveillance of the diseases targeted by the EPI is integrated with other diseases under surveillance as part of the national Integrated Disease Surveillance and Response (IDSR) system. The 21 diseases under surveillance are reported on a weekly and monthly basis, either by phone or fax, or by sending the reporting form to EPISTAT. Epidemic-prone diseases are reported on a weekly basis. The timeliness and completeness rates for these reports are respectively 85% and 90%.
For the EPI, the diseases under surveillance are poliomyelitis (AFP), measles, maternal and neonatal tetanus and *Haemophilus influenzae* type B meningitis. During 2002, active surveillance of measles was implemented in all the health provinces. The laboratory of Burundi's National Public Health Institute (INSP) provides serological case confirmation.

are confirmed by means of laboratory testing. In the case of AFP, stool specimens collected are sent to an international laboratory in Entebbe, Uganda.

a) Eradication of poliomyelitis

Burundi belongs to the Global Polio Eradication Initiative. Mass National Immunization Days (NID) for polio were organized from 1997 to 2002; immunization coverage rates ranged from 83% to 99%. In 2002 and 2008, Local Immunization Days (LIDs) for polio were organized among the provinces bordering the DRC, which suffered from unsatisfactory surveillance systems; 2 provinces had failed to reach an immunization coverage of 80% during prior NIDs. These activities were followed by implementation of an AFP surveillance system to detect any cases of wild poliovirus to arise. This system was initiated in 1999. In 2001, Burundi adopted the virologic classification scheme for cases of AFP. Committees were established to follow up on the certification activities (CNC, CNEP, GSC). The outcomes of AFP surveillance have been relatively satisfactory since the rate of non-polio AFP has exceeded 1 case per 100 000 children under the age of 15 for the past 10 years and has surpassed 2 cases/100 000 for the past four years. Routine surveillance has been strengthened by the establishment of focal points in every health district.

In 2009, the country organized NIDs in response to cases of WPV detected in the province of Cibitoke. In 2010, preventive NIDs for polio were organized in November and December. These preventive campaigns will be conducted according to the requirements of the subregion.

b) Measles control

Since 2002, Burundi has worked to control measles. Three immunization campaigns for this disease were organized in 2002, 2006 and 2009, attaining immunization coverage of 90%, 114% and 94.9%, respectively. Other health interventions were combined with these campaigns, such as deworming of children with Albendazole, administration of vitamin A and distribution of insecticide-treated mosquito nets (ITNs). Two additional follow-up campaigns are scheduled for 2012 and 2015.

c) Maternal and neonatal tetanus, its elimination as a public health problem

Burundi was certified as having eliminated MNT in 2009. The TT2+ immunization coverage in pregnant women has reached 94% in 2010. Activities are performed regularly to maintain this status.

d) Surveillance of *Haemophilus influenzae* type B (Hib)

Since 2007, this surveillance has been conducted by means of a sentinel site based at Kamenge UMC. Kamenge UMC is also in charge of the pediatric bacterial meningitis surveillance. The same site will integrate pneumococcal and rotavirus surveillance.

II.6. Support Components

II.6.1. Programme Management

The Expanded Programme on Immunization falls under the Health Services and Programs Office, which itself reports to the General Office of Public Health, which in turn reports to the Cabinet of the Minister of Public Health.

According to its organizational chart, the EPI operates under the aegis of its Director, who is assisted by a Deputy Director. The services of the EPI are currently the following:

- Management;
- Logistics;
- Training and supervision;
- Communication and Social mobilization;
- Surveillance of EPI target diseases;
- Health information systems.

The activities of the EPI are integrated at all levels. Training supervision is one of the key BDS activities and each health centre receives a supervisory visit at least once a month. The national level organizes monitoring and evaluation activities quarterly.

At the beginning of each year, an action plan and annual budget is prepared by the EPI for the cMYP and also submitted to the CPSD for approval (see "Monitoring & Evaluation Mechanisms"). Implementation and monitoring & evaluation of this plan are ensured by EPI units.

II.6. 2. Capacity building

II.6.2.1. Infrastructures

The administrative building of the EPI is small and outdated. It was built in 1985 and has four small offices (3x3 m) and one conference room divided into three small compartments used as offices. There are a total of is 32 staff members working at the EPI. Each office is occupied by five people. Although the EPI management team needs room for growth, the current office situation does not permit it. Accordingly, plans are underway for expansion and remodeling of the EPI headquarters.

II.6.2.2. Equipment

Despite the poor state of report of the EPI administrative building, the EPI office furnishings and fixtures are very old and need replacement in order to meet programme management requirements, such as rapid production of high-quality documents.

II.6.2.3. Training

Initial immunization training is given in all the country's paramedical schools and at the School of Medicine. However, an evaluation of training needs conducted in 2005 depicted school training programs as summary and inadequate. There is a real and urgent need for improvement.

With respect to continuing education, the MLM was adapted to the national context and was

cMYP.
Therefore, inadequacies remain, namely:
At the central level, new managers need to take the EPI management course.
At the intermediate level, an increased demand for enhanced staff abilities has been expressed with respect to:

- logistics, in particular inventory management, waste management, cold chain;
- advocacy and communication;
- supervision;
- coordination and monitoring & evaluation.

At the peripheral level, programme innovations, new hires and staff turnover explain the ongoing need for training/refresher courses on vaccine procurement, vaccine and cold chain management and social communication.

II.6.2.4. Personnel

The national level employs 32 individuals, including 2 physicians, 1 pharmacy technician, 5 middle managers, 8 technicians, 1 manager, 1 accountant, 1 cashier, 2 secretaries and 11 support agents. Despite the apparent sufficiency of this number, the EPI needs improved staff resources in order to perform its activities properly. The additional personnel requirements for the EPI are:

- one doctor in charge of surveillance;
- two technicians in charge of the Health Information System;
- one engineer or advanced technician for the cold chain.

At the intermediate and peripheral levels, even if the activities of the EPI are integrated, the personnel are insufficient and overworked.

II.6.3. EPI Funding

The principal sources of financing are the Government and the partners, including WHO, UNICEF and GAVI.
Table 9: Evolution of EPI budget by funding source (in thousands of US$)

Source	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Total budget for country	184 172	244 925	326 195	414 751	428 828	306 250	689 880	696 016
Ministry of Public Health Budget	4 001	4 822	5 055	16 986	13 003	25 218	35 696	51 219
EPI/Government budget	27	31	33	971	309	177	334	331
EPI/donor budget	3 162	6 089	5 378	5 510	8 268	4 488	4 780	4 181
Total EPI budget	3 189	6 121	5 412	7 919	8 578	4 665	5 114	4 512
% outside support for EPI	99%	99.50%	99.40%	84.0%	96.38%	96.20%	93.47%	92.67%
Contribution of the Government to the EPI (%) in relation to overall EPI budget	1%	0.50%	0.60%	16.0%	3.62%	3.8%	6.53%	7.33%
Proportion of EPI budget (Government) in relation to Ministry of Public Health	0.70%	0.70%	0.70%	14.20%	2.40%	0.7%	0.93%	0.65%

(Government) in relation to total national budget	0.62%	0.61%	0.61%	0.58%	2%			

Source: *Finance Laws of 2003, 2004, 2005, 2006,2007 and 2008, Cooperation Agreement between the EPI, WHO, UNICEF and GAVI.*

The Government's share of EPI funding (overhead and immunization independence) is still low: 1% in 2003 and 0.6% in 2005. However, after the debt relief enacted in 2006, the Government agreed to increase budget allocations to the EPI from 0.6% in 2005 to 16% in 2006. This increase can be explained by the fact that the Government has agreed to provide consistent funding for the rehabilitation of the cold chain in those facilities that participate in immunization and for the purchase of the EPI transportation. The Government continues to support the EPI using HIPC funding in the amount of 0.4% in 2008 and 6.53% in 2009 exclusive of overhead. Since 2008, the Government has been involved in co-financing of pentavalent in the amount of US$ 0.10 per dose. Support from outside partners, which represented 99% in 2003, has successively dropped to 96.20% in 2008, 93.47% in 2009 and 92.67% in 2010. These trends clearly show that Burundi remains dependent on foreign aid.

Foreign funding essentially pays for the purchase of vaccines, the cold chain, staff training, organization of immunization campaigns and surveillance of vaccine-preventable diseases. The financial instability that is caused by this heavy dependence on foreign aid compromises the programme's short- and medium-term autonomy and sustainability.

II.7. Innovations

In addition to traditional vaccines, the country has introduced vaccines for viral hepatitis B and *Haemophilus influenzae* type B.

In 2011, the Expanded Programme on Immunization will introduce the 13-valent pneumococcus vaccine.

Starting in 2012, the country plans to introduce the second dose of the MCV, and in 2013, the rotavirus vaccine.

Target population: children from 0 to 11 months.

The immunization schedule will be adjusted in order to improve parental adherence.[7]

The current proposal is as follows:

Table 10: Immunization schedule

Antigen	**Immunization period**
BCG	At birth
OPV	Birth; 6; 10; 14 weeks
DTP–HepB-Hib	6; 10; 14 weeks
13-valent pneumococcal	6; 10; 14 weeks – the pneumococcal vaccine schedule is similar to that of DTP or the pentavalent
MCV	9 months; 18 months
Rotavirus vaccine	6, 10 weeks
Vit A	9 months, 18 months, then every 6 months up to 5 years

	TT2 after 1 month, TT3 after 6 months, TT4 after 1 year, TT5 after 1 to 3 years.
TT non-pregnant women	TT1 at first contact, TT2 after 1 month, TT3 after 6 months, TT4 after 1 year, TT5 after 1 to 3 years.

Source: EPI

III. STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS

This chapter analyses the strengths, weaknesses, opportunities and threats of the EPI, both internal and external, in order to identify and prioritize its principal challenges using a presentation of the activities to be implemented.
The following tables will show the connections between the various issues identified, the target goals and the strategies for implementing activities in this cMYP.

Table 11: EPI strengths and weaknesses

EPI COMPONENT	STRENGTHS	WEAKNESSES
Provision of services	– Existence of a network of health centres within a radius of about 5 km – Existence of immunization providers at all levels – The intermediate and operational levels integrate the activities of the EPI and enable a rapid increase in the performance of immunization services – The quarterly organization of Mother and Child Health Week integrates EPI activities	– Implementation of the RED approach limited to a few districts – Certain districts have DTP3 and MCV immunization coverage below 80% – Absence of micro-plans at the intermediate and peripheral levels
Logistics		
Logistics resources for supervision and procurement;	– Available resources for supervision and procurement at the BDSs	The State's transportation reduced to a minimum for the national administrative unit

	– Adequate vaccine storage capacity at the national level	petrol and vaccines at the peripheral level. – Inadequate storage capacity in certain health districts – Problem obtaining cold chain maintenance supplies – Inadequate number of emergency generators in the BDSs – Insufficient training/refresher courses for personnel at all levels on cold chain maintenance – Absence of an updated cold chain rehabilitation plan.

EPI Component	Strengths	Weaknesses
Injection Safety	– Existence of 4 working incinerators – Use of AD syringes and sharps boxes	– No national biomedical waste elimination plan – Most of the incinerators built do not meet the standards – Insufficient number of technicians responsible for incinerator management and maintenance
Vaccine Procurement and Quality	–	–
Vaccine procurement	– Existence of a programme management unit on which UNICEF can depend throughout the vaccine purchasing process – Existence of a coordinating unit for vaccine procurement activities – No vaccine stock-outs since 2007 – Quality control mechanism provided (use of UNICEF supply channels for procurement from the national level) – Use of vaccine management software at the national level – Existence of a pool of managers	– Vaccine procurement procedures remain dependent upon external partners – Lack of IT tools for computerized vaccine management at the BDS level

	level – Improved monthly distribution of vaccines from the national level to the intermediate and peripheral levels	
Vaccine Quality	– Quality control mechanism ensured through the use of UNICEF procurement channels – Implementation of AEFI surveillance	– Inadequate monitoring and investigation of AEFIs – Absence of data on vaccine management
Communications and advocacy	– Increased social mobilization – Collaboration with the National Health Promotion Unit (SNPS) – Involvement of the administration and community health workers – Involvement of civil society	– Insufficient modern communications technology – Lack of an EPI communications plan
Disease control and surveillance	– Existence of a national Integrated Disease Surveillance and Response (IDSR) system – Existence of an integrated data gathering and processing system (EPISTAT) – Existence of surveillance focal points at the district level – Existence of a WPV importation response plan	– Poor staff abilities pertaining to surveillance data analysis and interpretation – Poor epidemic response capacities –
	–	
Programme Management	– Existence of a programme management and coordinating body – Computerized management of data at the national level – Existence of a 2011-2015 cMYP – Existence of an operational plan	– Lack of programme management autonomy due to delayed implementation of the OP – Small, outdated offices – Worn office furnishings – Poor coordination of stakeholders at the decentralized level
Capacity building	– Immunization training provided in the schools of health – Qualified human resources	– High turnover of EPI personnel – Lack of updates on EPI innovations – EPI management staff not yet trained in MLM.

Table 12: Opportunities and Threats

Opportunities	Threats
– Firm Government commitment to support the EPI (EPI integrated in the CSLP, NHP, NHDP) – Existence of a Health and Development Partnership Framework – (CPSD) playing the role of the ICC – Commitment of traditional partners to support the programme – Commitment of health sector stakeholders, including civil society, to health and immunization services	– The programme's high level of dependence on foreign funding – Global financial crisis – Fluctuating prices of petroleum products – Rolling blackouts and electricity outages – Certain districts from the interior of the country have not been connected to the national electric grid

IV. ESTABLISHING PRIORITIES AND SETTING OBJECTIVES

Table 13: National priorities, objectives and programme steps

Description of the problem	Programme objectives	Programme steps	Regional and international goals (by 2010)	Prioritization
1. Burden of administrative procedures	Improve programme management efficacy	**2012:** Texts relaxing programme management procedures are drafted and adopted **2012-2015:** Texts implemented		3
2. Lack of sites and equipment for coordination of the EPI		**2012**: Offices and equipment		3
3. The national strategic plan of the EPI does not take into consideration all of the challenges observed at the	Improve planning by integrating micro-planning in the decentralized facilities	**2011:** Micro-planning guidelines developed. **2011-2014 :** Micro-planning tool integrated.		4

4. Sustainability of programme funding	to attain at least a 35% government share in the EPI budget by 2015	**2010** : **8.8%** of the EPI budget 2011: **13.8%** of the EPI budget **2012** : **18.8%** of the EPI budget **2013** : **23.8%** of the EPI budget **2014** : **28.8%** of the EPI budget 2015 : **33.8%** of the EPI budget	Ensure sustainable EPI funding	2

Description of the problem	Programme objectives	Programme steps	Regional a international g 2010)
5. Low DTP3 immunization coverage (IC) in 9% of the health districts	To attain an IC for DTP3 of at least 80% in 100% of the health districts	**2010 : 91%** of health districts have attained a DTP3 IC over 80% **2012: 98%** of health districts have a DTP3–HepB3/Hib IC over 80% **2015 : 100%** of health districts have a DTP3–HepB3/Hib IC over 80%	By 2010 at the l countries should routine immuniz coverage of at le at the national le at least 80% in a districts
	By 2015, to attain an overall drop-out rate of under 10% in 100% of the health districts	**2010: 66% of districts have a overall drop-out rate under 10%** **2012 : 80% of districts have a overall drop-out rate under 10%** **2015** : **100% of districts have a overall drop-out rate under 10%**	By 2010 at the l provinces shoul routine immuniz coverage of 90% national level an 80% in all the di

Description of the problem	Programme objectives	Programme steps
- Poor surveillance data quality - Poor epidemic response capacity	Maintain surveillance indicators above international standards	**From 2011 to 2015:** - 3 cases of AFP per health district per year - A rate of adequate stool specimens of 80% or greater - A detection rate of 2 suspected cases of measles per 100 000 children under the age of 15 years per health district - Fewer than one case of MNT/1000 births per health district and per year.

management.		
Insufficient cold chain capacity and quality	By 2015, ensure the permanent functionality of the cold chain at all levels of the health system	**2010:** 82% of health facilities with a functioning cold chain **2012 :** 90% of health facilities with a functioning cold chain **2015 :** 100% of health facilities with a functioning cold chain
Suboptimal management of vaccine waste	By 2015, 100% of districts equipped with efficient incinerators	**2010:** 20% of HD **2012 :** 60% of health facilities **2015:** 100% of health facilities
Low capacity for vaccine and immunization supply management at the intermediate level	By 2015, 100% of HDs providing effective vaccine and immunization supply management	**2010:** 60% of HD **2012 :** 80% of HD **2015 :** 100% of HD

Table 14: Objectives, strategies and activities

Components	**Objective**	**Strategy**	**Activities**
• Place of the EPI in the organizational chart of the Ministry of Health	• To improve the efficacy of programme management and coordination	• Give the EPI ability to self-manage • Implementation of flexible mechanisms for management of the EPI • Rehabilitation of offices and EPI equipment	• Draft texts to make the EPI management mechanism flexible (establishing the EPI as a personalized administration) • Have these texts adopted at the level of the CPSD/ICC • Have these texts adopted at the level of the Ministerial Cabinet • Rehabilitate and equip the EPI's offices
• Programme organization	• Improve planning by integrating	• Decentralization of the planning process	• Draft planning guidelines in the

	•		management teams in decentralized structures about EPI planning •
• Programme funding	• to attain at least a 35% Government share in the EPI budget by 2015	• Strengthen advocacy to increase the budget	• Lobby the Government
Components	**Objective**	**Strategy**	**Activities**

		drop-out rate under 10% in 100% of HDs by 2015 to achieve 40% immunization coverage for the third dose of the 13-valent pneumococcal vaccine by the end of 2011 and 80% coverage by 2012 • to introduce the second measles vaccine dose in 2012 . to introduce the rotavirus vaccine in 2013	with catch-up activities • To pursue performance-based pay To strengthen communication for the EPI Introduction of the pneumococcal vaccine, the second dose of the measles vaccine and the rotavirus vaccine into the routine EPI across the country.	RED approach in each district • To ensuring monitoring of the approach's implementation • To continue distribution of vit. A, ITNs in routine immunization vit. A, ITNs and deworming in supplementary immunization activities. • To improve the monitoring of EPI indicators for the performance-based contract process • To ensure daily immunization • To conduct community awareness raising about the EPI • To provide supervision, monitoring and evaluation of the immunization services • To prepare, adopt and implement a communication plan for the EPI • To draft an introduction plan for the rotavirus vaccine and the second MCV dose to submit to GAVI • To adapt the data collection tools • Train personnel • Make vaccines available at all levels • Raise awareness in the community • Launch pneumococcus immunization activities

Components	Objective	Strategy	Activities
Procurement, storage, management and distribution of vaccines	• To equip 100% of HDs with computer equipment and vaccine management software by 2015	• Capacity building ✓ IT tool ✓ vaccine managemen t software	✓ Train the vaccine managers on the vaccine management tool ✓ Supervise the vaccine managers ✓ Provide computer hardware for vaccine management ✓ Provide maintenance of the computer hardware
Quality of the vaccines	• To have 100% of the BDSs properly reporting AEFIs by 2015 • To have 100% of the BDSs providing effective vaccine management by 2015	• Improved AEFI monitoring • Improved vaccine management	• To organize health worker sessions for AEFI surveillance • To conduct an independent vaccine management assessment • To train the managers and vaccinators on biomedical vaccine management • Biomedicals
*** Cold chain**	• By 2015, the cold chain is operational at all levels •	• Improved storage capacity • Improved cold chain maintenance system • Improving the capabilities of cold chain managers •	• Take an inventory of the cold chain at all levels • Equip the BDS and HC with enough cold chains and emergency generators • Provide a sufficient quantity of fuel (diesel and gas) to the BDS and HC • Equip the health facilities with cold chain maintenance and other equipment. • Organize training sessions on cold chain maintenance at all levels • Ensure cold chain maintenance at all levels • Ensure training supervision of cold chain maintenance

safety	of districts with efficient incinerators •	for injection safety • Drafting and adoption of texts on biomedical waste disposal	the biomedical waste management plan • Build efficient incinerators in every BPS/BDS • Train vaccinators in the management of vaccine waste at all levels

Components	**Objective**	**Strategy**	**Activities**
Disease control and surveillance	• Maintain surveillance indicators above regional standards	• Capacity building of personnel in surveillance data management • Capacity building for epidemic response	• Train 45 district chiefs, 45 multidisciplinary supervisors, 700 HC heads and 52 hospital data managers on the analysis and interpretation of surveillance data • Make updated standard data management tools available to personnel • Update the response plan for WPV importation • Make the necessary resources available to the focal points • Organize supervision of focal points • Investigate all cases of AFP detected • Ensure collection and transportation of stool specimens • Organize quarterly monitoring & evaluation meetings • Update and implement the specimen containment plan • Provide clinical monitoring of cases with inadequate samples • Investigate clusters and flare-ups

			• Collect samples for all suspected cases of measles and provide transportation • Organize feedback on the progress of surveillance activities • Produce and distribute a quarterly bulletin on the routine EPI and surveillance activities

IV. PLANNING FOR IMPLEMENTATION OF THE COMPREHENSIVE MULTI-YEAR PLAN (cMYP)

Table 15: Activity timeline

PROGRAMME MANAGEMENT INSTITUTIONAL AND FINANCIAL ENVIRONMENT							
Objective	**Strategy**	**Activity**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
• Improve the efficacy of programme management and coordination	• Give the EPI the ability to self-manage • Implementation of flexible mechanisms for management of the EPI • Rehabilitation of offices and EPI equipment	• Draft texts to make the EPI management mechanism flexible (establishing the EPI as a personalized administration) • Have these texts adopted at the level of the CPSD/ICC • Have these texts adopted at the level of the Council of Ministers • Rehabilitate and equip the EPI's offices	X X X	x x X	x	x	x
• Improve planning by integrating micro-planning in the decentralized facilities	Decentralization of the planning process at the intermediate and peripheral levels	• Draft planning guidelines in the form of a micro-plan • Train management teams in decentralized structures about EPI planning	x X	X	X		
• By 2015, attain at least a 35% Government share in the EPI budget	Strengthen advocacy for an increase in the budget	- Draft an advocacy note to be submitted to the Government and the Parliament	x	x	X	X	X

PERFORMANCE OF THE PROGRAMME							
Objective	**Strategy**	**Activities**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
• Achieve an IC rate for DTP3 of at least 80% in 100% of health districts • By 2015, achieve an overall drop-out rate under 10% in 100% of	Expanded implementation of the RED approach in all health districts	• To ensure daily immunization • To provide supervision, monitoring and evaluation of the immunization services • To train EPI managers at the	x x	x x	x x	x x	x x

HDs		intermediate and peripheral levels on the RED approach • To ensure the implementation of the RED approach in each district • To monitor implementation of the approach	x X X	x X X	x X X	x X X	x X X
	• Integration of other health interventions with catch-up activities	To continue distribution of vit. A, ITNs in routine immunization vit. A, ITNs and deworming in supplementary immunization activities.	x	x	x x	x x	x x
	• To pursue performance-based pay	• To improve monitoring of EPI indicators for the performance-based contract process	x	x	x	x	x
	• Strengthening communication for the EPI	• Prepare, adopt and implement a communication plan for the EPI • Conduct community awareness actions in favor of the EPI	x x	x x	x x	x x	x x

to achieve 40% immunization coverage for the third dose of the 13-valent pneumococcal vaccine by the end of 2011 and 80% coverage by 2012	• Introduction of the pneumococcal vaccine	• Train personnel • Make vaccines available at all levels • Raise awareness in the community • Launch pneumococcus immunization activities in July 2011	X X X X	X X x	X X x	X X x	X X x
Introduce the second dose of the measles vaccine in 2012 and the rotavirus vaccine in 2013	Introduction of the second dose of the measles vaccine and the rotavirus vaccine into the routine EPI across the country	• Draft an introduction plan for the rotavirus vaccine and the second dose of MCV to submit to GAVI • Adapt the data collection tools • Train personnel • Make vaccines available at all levels • Raise awareness in the community • To launch immunization activities with the second dose of MCV in 2012 • Train personnel • Make vaccines available at all levels • Raise awareness in the community	X	X x X X x	X X X X X	x	

		• Launch rotavirus vaccine immunization activities in 2013			X	x x	

EPI Logistics							
Objective	**Strategy**	**Activities**	Year 1	Year 2	Year 3	Year 4	Year 5
To equip 100% of HDs with computer equipment and vaccine management software by 2015	• Capacity building ✓ IT tool ✓ vaccine management software	✓ Train the vaccine managers on the vaccine management tools ✓ Supervise the vaccine managers ✓ Provide computer hardware for vaccine management ✓ Provide maintenance of the computer hardware	x x x	x x x	x x x	x x x	x x x
• To have 100% of the BDSs properly reporting AEFIs by 2015	• Improved AEFI monitoring	• To organize health worker training sessions on AEFI surveillance					
• To have 100% of the BDSs providing effective vaccine management by 2015	• Improved vaccine management	• To conduct an independent vaccine management assessment • To train the managers and vaccinators on biomedical vaccine management	x x	 x	x x	 x	 x
• By 2015, the cold chain is operational at all levels •	• Improved storage capacity	• Take an inventory of the cold chain at all levels • Equip the BDS and HC with enough cold chains and	x x	 x	 x	 x	 x

		emergency generators • Provide a sufficient quantity of fuel (diesel and gas) to the BDS and HC • Equip the health facilities with cold chain maintenance and other equipment.	x x	x x	x x	x x	x x
•	• Improved cold chain maintenance system	• Equip the health facilities with cold chain maintenance and other equipment. • Organize training sessions on cold chain maintenance at all levels • Ensure cold chain maintenance at all levels • Ensure training supervision of cold chain maintenance	x x x x	x x x x	x x x x	x x x x	x x x x
• By 2015, equip 100% of districts with efficient incinerators	• Capacity building for injection safety	• Finalize and implement the biomedical waste management plan • Build efficient incinerators in every BPS/BDS • Train vaccinators in the management of vaccine waste at all levels	x x	x x x	x x x	x x	x x

INTEGRATED DISEASE SURVEILLANCE							
Objective	**Strategy**	**Activities**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
• Improve data management ✓ Attain a 100% rate of properly completed reports ✓ Attain 100% completeness ✓ Attain 100% timeliness	• Capacity building of personnel in data management	• Update training modules and tools (records, report forms, monthly summary data sheets) • Train field participants in IDSR, computer systems, communication • Provide HIS managers with computer hardware and electronic equipment (laptops, mobile phones, flash drive, CD-ROM,	x x x	 x x	x x x	 x x	 x x

		modern means of communication, etc) • Implement the supervisory plan	x	x	x	x	x
	• Improvement of the communication system	• Make available modern and effective communication means at the peripheral level .	x	x	x	x	x
		• Prepare and implement a statistical data distribution plan	x	x	x	x	x
		• Establish performance-based pay based on EPI target disease surveillance indicators	x	x	x	x	x
• Attain a detection rate of 3 AFP cases per 100 000 children under the age of 15 years per health district per year • Maintain a rate of adequate stool specimens of 80% or greater • Detect 2 cases of measles per 100 000 children under the age of 15 years • Detect fewer than one case of NNT per 1000 live births per HD	• Strengthening of the active and passive AFP surveillance system	• Update the imported disease response plan	x	x	x	x	x
		• Make the necessary resources available to the focal points	x	x	x	x	x
		• Organize supervision of focal points	x	x	x	x	x
		• Investigate and provide collection and transportation of stool specimens for all detected cases	x	x	x	x	x
		• Organize quarterly monitoring & evaluation meetings	x	x	x	x	x
		• Update and implement the specimen containment plan	x	x	x	x	x
		• Provide clinical monitoring of cases with inadequate samples	x	x	x	x	x
		• Investigate clusters and outbreaks	x	x	x	x	x
		• Organize service provider and community awareness meetings regarding EPI disease surveillance	x	x	x	x	x

V. ANALYSIS OF THRE COMPREHENSIVE MULTI-YEAR PLAN COSTS, FUNDING AND CHALLENGES

V.1. Analysis of costs and expenditures for the 2011-2015 cMYP

The baseline year for estimating the costs of this cMYP is 2010. This is dictated by the fact that the analysis of expenditures associated immunization activities is realistic and enables the creation of a basis for calculating the additional costs to be incurred by the introduction of the rotavirus vaccine and the second dose of the measles vaccine. Therefore, the immunization programme cost profile for 2010 breaks down the total immunization expenditures into the components described in the following table.

Table 16: Programme cost profile for the baseline year of 2010

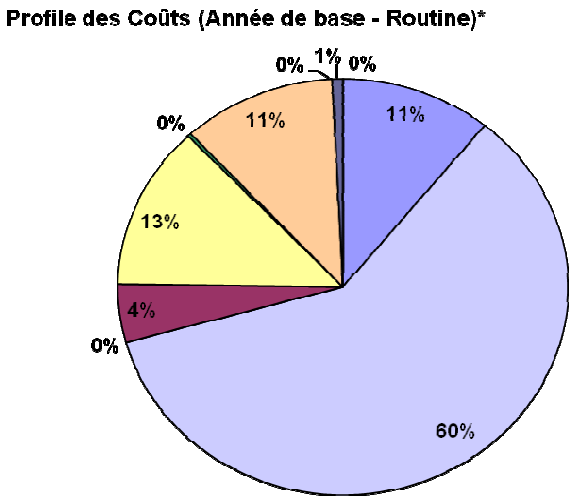
Baseline year indicator	2010
Total immunization expenditures	$6 271 791
Immunization campaigns	$1 707 243
Routine immunization	$4 564 548
per capita	$0.5
per child DTP3	$13.3
% vaccines and injection supplies	75.2%
% Government funding	8.9%
% total health care expenditures	3.1%
% total government health expenditures	18.3%
% GDP	0.39%
Total shared costs	
% of shared costs in the total	
TOTAL	$6 271 791

The chart below highlights staff costs estimated at 4% and 11% for traditional vaccines and 60% for the new and under-used vaccines. This means that the introduction of new vaccines will generate additional resources that the government should mobilize from these financial partners.

The cMYP cost profile is shown in Chart 1 below:

Chart 2: Profile of cMYP costs

[**Chart title**: Cost profile (Baseline year – Routine)]

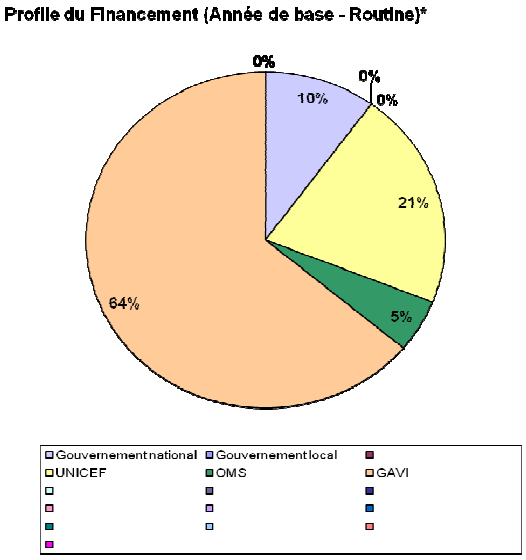


V.1.2. Sources of EPI funding

Regarding immunization funding during the 2010 baseline year, funding sources, in order of contribution size, were provided by GAVI (64%), UNICEF (21%), Government (10%) and WHO (5%), as shown in the chart below: Chart 4: Funding profile by source

The resources expected from GAVI during the introduction of new vaccines represents 64% of the provisional costs of the cMYP, followed by UNICEF and then the Government. WHO only contributed about 5% of the total expenditures. Note that WHO and UNICEF have only fully revealed their budget share for the year 2012 (a single year of the cMYP).

Chart 3: Funding profile



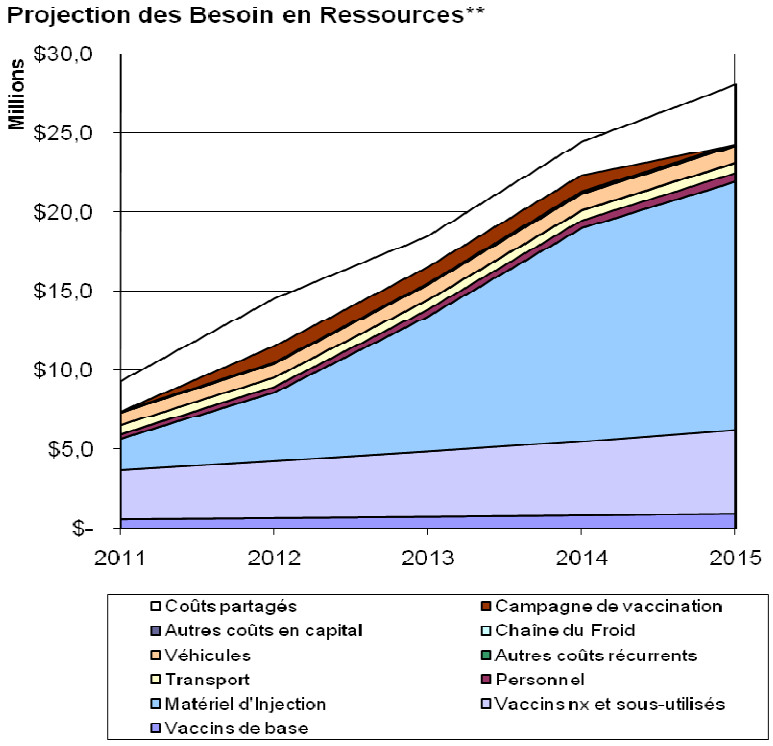
[**Chart title:** Funding Profile (Baseline Year – Routine)]
[**Chart key:**
National Government Local Government
UNICEF WHO GAVI]

V.1.3. Projected resource needs

Projections of resource needs show a trend of forecast expenditures related to the introduction of new vaccines in 2012 and 2013 (the rotavirus vaccine and the second dose of measles vaccine), the implementation of immunization campaigns against measles in 2012 and 2015 and preventive campaigns against polio every year; the projected expenditures per year would be US$ 14 527 822 in 2012, US$ 18 489 266 in 2013, US$ 24 450 120 in 2014 and US$ 28 065 161 in 2015. The overall cost of the implementation of the cMYP is estimated at US$ 94 831 485 and consists of secure financial resources amounting to US$ 31 839 024, of probable resources of approximately US$ 56 685 201 and a need additional funding in the amount of US$ 6 307 260. The overall funding gap comes to US$ 62 992 461 if we count probable resources as being not yet mobilized. Accordingly,

the Government finds itself in a situation where it needs to mobilize additional funding reaching 66% of the total funding. On the other hand, if the probable resources are considered to have been acquired, the funding need is estimated at 7%, or only **US$ 6 307 260**.

The distribution of funds according to programme component shows that the introduction of the rotavirus and measles (2nd dose) vaccines will entail an increase in the projected costs of immunization activities. The largest portion of these costs is attributable to the purchase of vaccines and injection supplies in addition to the programme's routine immunization activities.
Chart 4: Funding needs for the cMYP



[Chart title: Projected Resource Needs]**
[Key:

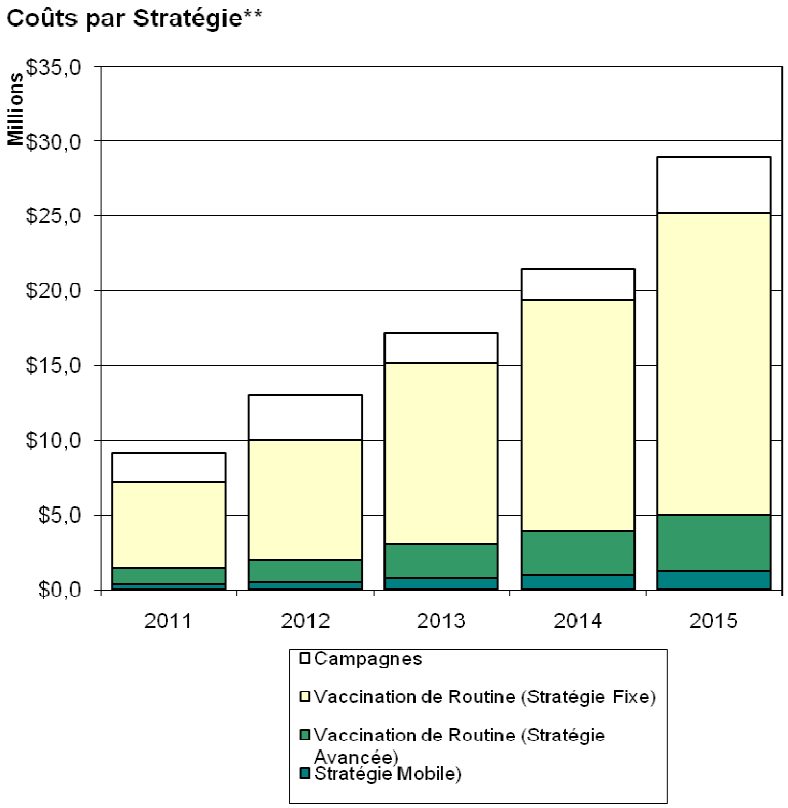
Shared Costs	**Immunization Campaign**
Other capital costs	**Cold Chain**
Vehicles	**Other recurring costs**
Transportation	**Personnel**
Injection supplies	**New and under-used vaccines**
Baseline vaccines]	

Other expenditures to be borne by the cMYP are those relating to cold chain maintenance costs, immunization campaign and personnel (the latter being fully supported by Government funds).

V.2. Costs by Strategy

The costs for all of the fixed, outreach and mobile strategies do not increase significantly each year. Nevertheless, the very high costs in 2012 and 2013 are due to the implementation of additional immunization activities, including the costs of the polio and measles campaigns.

Chart 5: Cost strategy



[Chart title: Costs by Strategy]
[**Key:**
Campaigns
Routine immunization (Fixed strategy)
Routine immunization (Outreach strategy)
Mobile Strategy]

The campaign and routine immunization absorb a large share of expenditures among all the activities of the Expanded Programme on Immunization. This is explained by the fact that routine immunization (fixed strategy) uses many inputs, including vaccines and immunization supplies as well as the costs linked to their storage and transportation. The outreach strategy is also favored in the process of implementing the cMYP since it leads to an improvement in the quality of immunization services.

Table 17: Funding gap and indicators (see costing tool, financial deviation and indicator sheet, lines 21-67)

Resource needs, funds, and funding gap*	**2011**	**2012**	**2013**	**2014**	**2015**	**Avg. 2011 – 2015**
Resource needs	**$9 299 116**	**$14 527 822**	**$18 489 266**	**$24 450 120**	**$28 065 161**	**$94 831 485**
Resource needs (Routine Immunization)	**$7 373 526**	**$11 519 012**	**$16 533 337**	**$22 340 768**	**$24 265 073**	**$82 031 716**
per capita	$0.9	$1.3	$1.8	$2.4	$2.6	$1.8
per child DTP3	$20.8	$31.4	$44.0	$58.1	$61.6	$43.8
Total secured funding	**$8 460 343**	**$8 012 575**	**$4 493 491**	**$5 117 878**	**$5 754 737**	**$31 839 024**
National government	$389 796	$421 126	$609 499	$694 142	$717 137	$2 831 700
UNICEF	$1 845 714					$1 845 714
WHO	$873 436					$873 436
GAVI	$5 351 397	$7 591 449	$3 883 992	$4 423 736	$5 037 600	$26 288 174
Funding gap (secured funding)	**$838 773**	**$6 515 247**	**$13 995 775**	**$19 332 242**	**$22 310 424**	**$62 992 461**
% resource needs	9%	45%	76%	79%	79%	66%
Total probable funds (non-secured)	**$318 000**	**$5 340 383**	**$12 257 287**	**$17 401 702**	**$21 367 829**	**$56 685 201**
National government		$807 404	$200 891	$305 327	$432 651	$1 746 273
Local government						
UNICEF		$2 559 900	$2 099 763	$2 228 676	$3 381 190	$10 269 529
WHO	$318 000	$1 316 684	$1 044 320	$1 096 092	$1 497 270	$5 272 366
GAVI		$656 395	$8 912 313	$13 771 607	$16 056 718	$39 397 033
Funding gap (Secured and probable funding)	**$520 773**	**$1 174 864**	**$1 738 488**	**$1 930 540**	**$942 595**	**$6 307 260**
% resource needs	6%	8%	9%	8%	3%	7%

An analysis of this table shows that the funding gap consists of probable financing and additional funding to be raised from the traditional partners to support immunization. Thus, the funds to be mobilized are on the order of US$ 94 831 485, of which the amount of US$ 56 685 201 is probable (partially secured); US$ 6 307 260 remains to be procured.

For implementation of the cMYP, the government and its partners will need to make a significant effort to obtain this amount. In fact, the objectives defined in this document will only be achieved after mobilizing all of these funds. The following chart shows the trend lines of the estimated costs to ensure that the target objectives of the cMYP are achieved.

Projected funding over the next five years, including the cost of the new vaccine, is US$ 94 831 485, or an average of US$ 18 966 297 per year; this volume of projected expenditures can be explained by the fact the most affected expenditure items are the purchase of

new vaccines and injection supplies. On the other hand, the increased cost of traditional vaccines is a function of the target population. Other items, such as training, cold chain and the capital expenses, also increase with the introduction of these vaccines. Table X shows the distribution of resource needs per year and over the period of the cMYP.

The distribution of expenditures by immunization system partner takes into consideration the financial contributions allocated to immunization activities in past years as well as the potential increase in these contributions to fund EPI activities. Thus, an in-depth analysis of the cost projections for the period of the cMYP shows three major cost categories: secured funding, consisting of funds acquired from traditional partners (WHO, UNICEF, GAVI) and the Government for immunization excluding introduction of new vaccines **US$ 31 839 024** of which **US$ 26 288 174** will be supported by GAVI; probable funding, consisting of funds that may be allocated by traditional partners as an increase in their contribution to immunization, including new vaccines, or **US$ 56 685 201** of the total projected expenditures; and the funding GAP identified to meet needs expressed by the cMYP is **US$ 6 307 260** once the first two funding sources have been mobilized. In general, the required funds that need to be raised for this cMYP are estimated at **US$ 62 992 461.**

V.2.1. Projections of Secured Funding

The profile for future secured funding of the cMYP is shown in the table below:

Table 18: Available funding by partner:

	2011	2012	2013	2014	2015	Avg. 2011 - 2015
Total du Financement Assuré	**$8 460 343**	**$8 012 575**	**$4 493 491**	**$5 117 878**	**$5 754 737**	**$31 839 024**
Gouvernement national	$389 796	$421 126	$609 499	$694 142	$717 137	$2 831 700
Gouvernement local						
UNICEF	$1 845 714					$1 845 714
OMS	$873 436					$873 436
GAVI	$5 351 397	$7 591 449	$3 883 992	$4 423 736	$5 037 600	$26 288 174

[**Table label: Total secured funding**
National Government
Local Government

UNICEF
WHO
GAVI]

The secured funding mostly involves staff salaries, supported by the Government, and the purchase of under-used vaccine, supported by GAVI, in the amount of US$ 26 288 174. The working plans of the WHO and UNICEF for 2012 to 2015 are not yet official, which makes it difficult to estimate secured funding.

V.2.2. Projections of Probable Funding

Probable funding is approximately US$ 56 685 201 and will come from partners as shown below:
Table 19: Probable funding

	2011	2012	2013	2014	2015	Avg. 2011 - 2015
Total du Financement Probable (Non-Assuré)	**$318 000**	**$5 340 383**	**$12 257 287**	**$17 401 702**	**$21 367 829**	**$56 685 201**
Gouvernement national		$807 404	$200 891	$305 327	$432 651	$1 746 273
Gouvernement local						
UNICEF		$2 559 900	$2 099 763	$2 228 676	$3 381 190	$10 269 529
OMS	$318 000	$1 316 684	$1 044 320	$1 096 092	$1 497 270	$5 272 366
GAVI		$656 395	$8 912 313	$13 771 607	$16 056 718	$39 397 033

[Table label: Total probable funding (non-secured)
National Government
Local Government

UNICEF
WHO
GAVI]

This financing is probable because for the most part it represents the funds not yet available for the EPI programme due to the fact that certain partners have not yet announced their financial contributions and also the fact that the proposal to GAVI for the acquisition of new vaccines has not yet yielded the expected outcome. This funding cap mostly represents the cost imposed by the introduction of new vaccines.

V.3. Analysis of current and projected funds for future years, as well as gaps

As indicated in the table below, there is a significant funding gap for the needs of the cMYP, regardless of the type of funding considered.
In fact, if we consider guaranteed or secured funding, the gap is on the order of: 9% in 2011 ; 45% in 2012 ; 76% in 2013, 79% in 2014 and 79% in 2015; for the entire period of the cMYP, the mean gap would be 66% of the overall needs if we count secured funding.

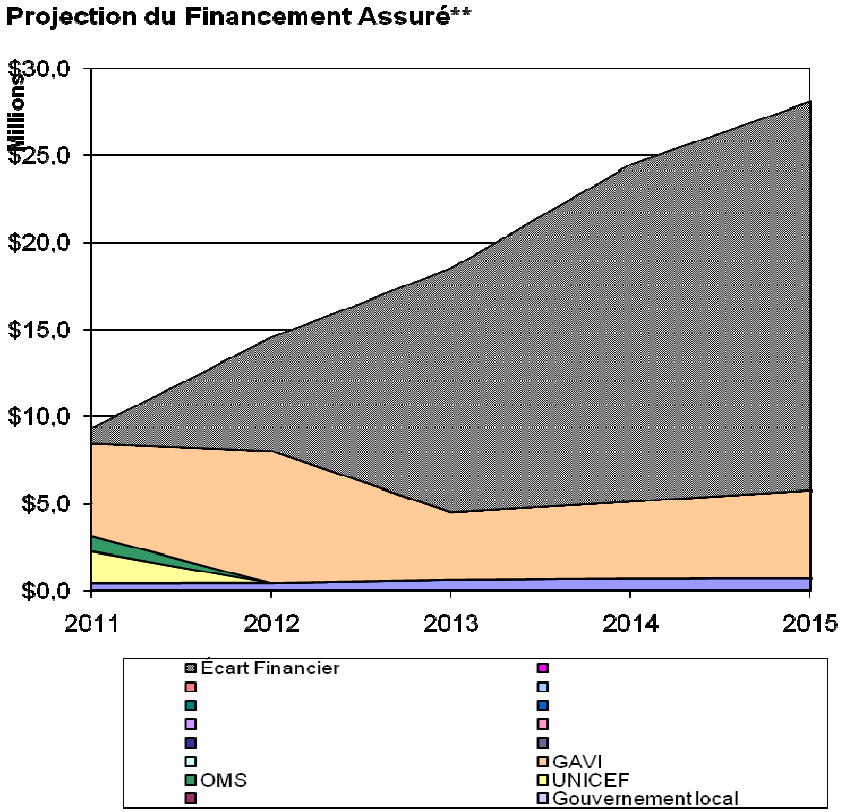
Table 20: Composition of financial gaps for vaccines

Composition des Écarts Financiers	2011	2012	2013	2014	2015	Avg. 2011 - 2015
Vaccins et matériel d'injection		$986 225	$9 394 118	$14 416 108	$16 780 569	$41 577 020
Personnel	$1	$546 085	$557 007	$568 147	$579 510	$2 250 750
Transport	$5 156	$13 819	$14 621	$14 913	$9 837	$58 346
Activité et autre coûts récurrents	$425 921	$866 501	$954 935	$1 039 744	$1 063 951	$4 351 052
Logistiques (véhicules, chaîne du froid....)	$51 469	$1 093 807	$1 119 165	$1 183 977	$76 469	$3 524 888
Campagne de vaccination	$356 226	$3 008 810	$1 955 929	$2 109 352	$3 800 088	$11 230 405
Écart Financier*	**$838 773**	**$6 515 247**	**$13 995 775**	**$19 332 242**	**$22 310 424**	**$62 992 461**

[Table top row: **Break-down of funding gaps**
Vaccines and injection supplies
Personnel
Transportation
Activities and other recurrent costs
Logistics (vehicles, cold chain, etc.)
Immunization campaign
Funding Gap]

The data enumerated in the table above are broken down by component and reflect the funding gap that needs to be covered to effectively implement the immunization programme when new vaccines are being introduced. It is noteworthy that the vaccine components and injection supplies, plus the immunization campaign, by themselves absorb almost all of the projected expenditures, specifically US$ 52 807 425. The projected expenditures on items related to activities and other recurring costs, and on logistics are likewise elevated because they represent the cornerstone of the achievement of this cMYP's objectives. Regarding the projections of available resources (table below), the effort anticipated from the Government and financial partners is still huge enough for this cMYP to be implemented.

Chart 6: Projections of Secured Funding



[**Chart title: Projections of secured funding**
[Key left column:
Funding Gap
WHO

Key right column:
GAVI
UNICEF
Local Government]

The purple area of the chart above clearly shows the estimated financial amount necessary, which will have to be raised during the period of 2012-2015.
To decrease this funding gap, the only item that can be manipulated is the item on immunization campaigns, by trying to reduce the number and duration of these campaigns, but the advantage to be had remains fairly insignificant. This approach contributes nothing extra, which leads to the strategy of mobilizing all the projected expenditures described in this cMYP. The table below gives us a detailed overview of these projections, including the shared costs of the health systems.

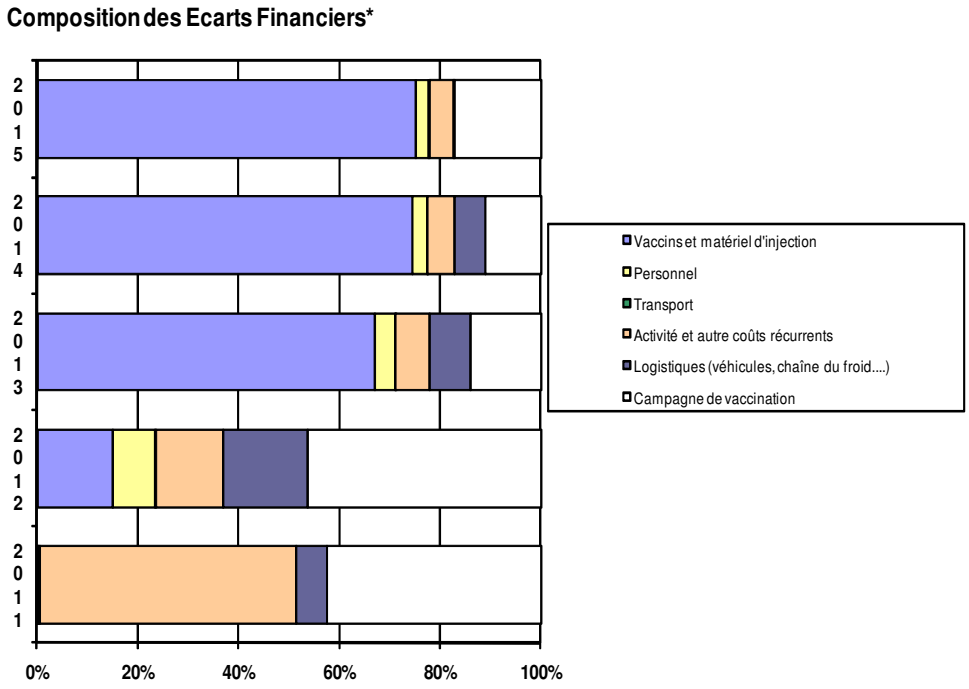
Table 21: Summary of costs and resource needs (in US$)

		Expenditure	Future resource needs					
Components of the Multi-Year Plan		**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2011-2015 Total**
		US$	**US$**	**US$**	**US$**	**US$**	**US$**	**US$**
	Vaccines and Logistics	$3 522 951	$6 044 887	$10 157 043	$15 143 603	$20 923 239	$22 824 568	$75 093 340
	Services provided	$591 997	$604 847	$617 459	$630 333	$642 940	$650 425	$3 146 005
	Advocacy and Communications	$60 000	$117 300	$119 646	$122 039	$124 480	$126 969	$610 434
	Epidemiological Monitoring and Surveillance	$195 000	$408 000	$416 160	$424 483	$432 973	$441 632	$2 123 248
	Programme Management	$194 600	$198 492	$208 704	$212 878	$217 136	$221 479	$1 058 689
	Supplementary Immunization Activities	$1 707 243	$1 925 590	$3 008 810	$1 955 929	$2 109 352	$3 800 088	$12 799 769
	Shared Costs of the Health System	$2 631 057	$2 683 678	$3 673 711	$2 850 465	$2 847 940	$2 904 899	$14 960 694
GRAND TOTAL		**$8 902 848**	**$11 982 794**	**$18 201 534**	**$21 339 731**	**$27 298 060**	**$30 970 061**	**$109 792 179**

V. 4. Analysis of the gaps

Over the period of the cMYP, the funding gap is dominated by the cost of new vaccines, injection supplies and the construction of incinerators. The financial gap exists for both the secured and probable funding. These financial gaps are reported in table 20. Additional funding must be raised to reduce this gap.

Chart 7: The funding gaps



[Chart title: **Composition of funding gaps]**
[Key:
Vaccines and injection supplies
Personnel
Transportation
Activities and other recurrent costs
Logistics (vehicles, cold chain, etc.)
Immunization campaign]

After the second year (2013), during introduction of the rotavirus and the measles vaccine, the funding gap grows more and more until 2015.

VI. SUSTAINABILITY OF THE PROGRAMME AND cMYP IMPLEMENTATION STRATEGIES

The strategies for financing this comprehensive multi-year plan to be used for the EPI are discussed in the following paragraphs. Two types of strategies will be used:

- mobilization of reliable internal and external resources;

- strategies permitting the efficient use of resources.

VI.1. Mobilization of domestic resources.

By domestic resources, we mean funding secured by the Government, local NGOs involved in the health sector, and the communities themselves.

Funding by the Government.

The government is currently providing the EPI's operating expenses. As part of the Vaccine Independence Initiative, the State is contributing as much as 10% for the purchase of vaccines. Indeed, the agreement between GAVI and the Government stipulates that the State must progressively increase its share until it is funding a major share of the vaccines purchased.

Funding by domestic partners

The Government will implement mechanisms involving local economic operators to support immunization services by establishing a national immunization fund.

Community participation

The community indirectly participates in funding immunization activities such as social mobilization and awareness-raising activities by local collectives. This initiative will be enhanced by the introduction of the second measles vaccine dose and the rotavirus vaccine.

VI.2. Mobilization of foreign resources

VI.2.1.Traditional partners of the EPI

The traditional partners of the EPI are: UNICEF, WHO, Rotary Club International, CDC, bilateral aid. This partnership should be strengthened in order to successfully introduce the second measles vaccine dose and the rotavirus vaccine.

VI.2.2. Other partners

The programme cost estimate shows a progressive increase in resource needs during the period of GAVI support. The Government of Burundi will need to make an effort to raise awareness among the other partners, so that they can play a role in supporting the programme in order to ensure the achievement of the activities scheduled within the framework of this cMYP.

VII. MECHANISMS FOR cMYP MONITORING & EVALUATION

At the national level, interventions are coordinated through the National Aid Coordinating Committee (CNCA) and target the implementation of the 2006-2010 SFPR and its priority action plan (2007-2010 PAP). The TFP likewise has its own coordinating body called the Partner Coordinating Group (GCP). At the sector level, coordination is provided by sectoral and sub-sectoral coordinating groups.

In the health sector, a Health and Development Partnership Framework (CPSD) was established in March 2007 by the Ministry of Public Health and AIDS Control in order to facilitate the coordination of technical materials, supplies, and financial materials to implement the NHDP in order to attain national objectives as well as the Millennium Development Goals (MDGs) reflected in the SFRP and the Government's Priority Action Plan (PAP). The SFRP represents a framework for dialogue between the Ministry of Public Health and AIDS Control and its partners with the goal of improving implementation of the NPHD; it has 5 thematic categories: Decentralization, Human Resources, Funding, Medicine, Monitoring & Evaluation, and Health Information Systems. It is chaired by the Minister of Public Health and AIDS Control and co-chaired by a partner head with a one-year rotating mandate. A permanent secretariat was established and is provided by the General Directorate of Public Health, with support from the World Health Organization.

The SFRP commits the Government and its partners to make aid more effective in the field of health, in accordance with the Declaration of Paris. It aims to foster and strengthen a strong and consistent sectoral strategy for health development in Burundi, all while keeping with the philosophy of international initiatives. Likewise, it translates the commitment of the Government of Burundi and its partners into collaboration with civil society to confront the challenges now facing Burundi's health system. As part of monitoring & evaluation, joint annual reviews (Ministry and their TFPs) are held annually.

In light of the mission and composition of the SFRP, the latter fully replaces the mission of the ICC in piloting EPI activities.

The following instruments will be used for monitoring & evaluation of the cMYP: Supervision and monitoring, investigations, health information system, reviews and self-assessment tools.

Supervision and monitoring

The supervision and monitoring system will be strengthened at each level of the health care pyramid. A plan for supervision and follow-up of immunization activities will be prepared at the intermediate level. On a quarterly basis, the central level will supervise the activities of the health provinces, which will do the same for the health districts. The districts will ensure that each health facility in their zone of action is visited once a month.

Routine data will be collected within the context of the national HIS and will allow monitoring at each level of the system. The EPI's own database will be implemented to improve the system and set the pace for the entire health care system. Likewise, EPI disease surveillance integrated with that of all other diseases under surveillance will be strengthened, which will improve the operation of EPISTAT.

Investigations and reviews

In order to obtain reliable data to track the progress made by the EPI, epidemiological or social investigations will be conducted every 5 years. Furthermore, the Ministry of Public Health, in collaboration with its partners, will organize periodic external reviews or quality control of EPI data to ensure a state of progress in implementation of the cMYP.

Assessments

Periodic assessments will be performed as part of implementing the cMYP. These assessments will relate to the implementation plan for routine activities and the introduction of new vaccines and new immunization technologies. Simplified self-assessment tools will be distributed at the intermediate level. At the national level, a quarterly activity assessment will be conducted in order to measure the progress achieved.

VII. CONCLUSION

In order to achieve the MDGs ( ), the Government of Burundi has adopted immunization as one of its responses to high the rate of maternal/infant morbidity/mortality. It helps reduce poverty, and is one of the Government priorities. The major challenge facing the health care system is due to high maternal/infant mortality caused by vaccine-preventable diseases. In order to mitigate this challenge, the Government [sic] an immunization programme, the goal of which is to provide immunizations for children and women of child-bearing age.

Accordingly, the cMYP represents a favored planning and implementing tool of the EPI programme. To this end, it represents a referral and advocacy document to mobilize the resources necessary for its implementation.

This document sheds light on the priority activities targeted for reducing mortality and the funding requirements necessary to achieve the EPI's objectives. Among its priorities is the introduction of new vaccines, particularly the rotavirus vaccine. It also contains strategies for implementation and mechanisms for financing and monitoring & evaluation of the programme activities.

The financial sustainability analysis provides a detailed overview of secured funding, probable financing and the funding gap. Presently, the secured funding comes from the traditional partners of the Ministry of Health and Government.

In fact, implementation of the cMYP will hinge on its adoption by the Government, its partners and all of the stakeholders in the health care system.

To improve the short- and long-term financial sustainability of the EPI and to ensure its autonomy, the strategic plan has primarily focused on:

- Improving programme efficacy so as to require only a minimum of additional resources;
- Strengthening mechanisms for reliably mobilizing resources both internally and externally.

As such, the Government is recommended to make an additional effort to become responsible within five years for all expenditures pertaining to the purchase of vaccines and those imposed by immunization activities, in order to make the EPI's interventions sustainable (15% of the general State budget allocated to health as recommended by the Heads of State meeting in Abuja, Nigeria, with an increased allocation of resources to the EPI).

With regard to the partners, technical and financial support is strongly expected as part of funding the 2011-2015 cMYP for effective implementation of the activities indicated in said document.

IX. Indicators

The principal monitoring & evaluation indicators of the cMYP are the following:

- DTP3 immunization coverage at the national level;
- Immunization coverage by antigen and by district;
- % of districts with a DTP3 coverage > 80%;
- DTP and MCV drop-out rate by district;
- % of districts with a DTP1 - DTP3 drop-out rate of < 10%;
- Wastage rate by antigen and by district;
- % of districts using the RED approach;
- % of immunization centres with vaccine stock-outs during the year;

- Number of functional incinerators;
- Number of facilities properly using the waste collection system;
- Timeliness and completeness of reports by district;
- Incidence of and mortality of EPI target diseases:
  - ✓ Incidence of serious AEFIs;
  - ✓ Annualized rate of non-polio AFP cases;
  - ✓ Rate of increase of the State budget for the EPI;
  - ✓ Incidence of MNT;
  - ✓ % of districts providing measles surveillance.

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