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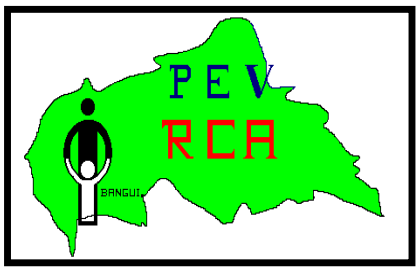
COMPREHENSIVE MULTI-YEAR PLAN FOR THE EXPANDED PROGRAMME ON IMMUNIZATION IN CENTRAL AFRICAN REPUBLIC
2011 - 2015



Bangui, May 2011

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PREFACE

In 2005, Central African Republic adopted the National Health Development Plan II (NHDP- II) for the period from 2006 to 2015. This second version of the plan, composed of high-priority health programmes, takes into account the Millennium Development Goals (MDG); progress towards these goals will be measured in the target year of 2015.

The Expanded Programme on Immunization is one of the high-priority programs of the NHDP-II; this programme's contributions towards reducing under-five and maternal mortality rates were widely acknowledged upon completion of the EPI's Operational Plan for Accelerated Development (*Plan d'Opération pour le Développement Accélérée,* or PODAPEV). In 1987, Central African Republic was granted an award from the National Council for International Health (NCIH) in recognition of the remarkable progress it had made towards child survival in Africa.

This progress was not successfully maintained or consolidated during the period of 1997 through 2003 due to both the inadequate performance of the health system and, in particularly, the unfavorable sociopolitical environment of the time. This situation has had consequences, such as a surge in infant mortality (220 per 1000) and maternal mortality (1355 per 100 000 live births) according to the indicators from the 2003 General Population and Housing Census (GPHC).

The Government of CAR, aware of the impact of the Expanded Programme on Immunization on child survival and development, adopted the EPI multi-year plan for 2003 to 2007, which resulted in an improvement in immunization coverage in the first four years of its implementation. Nevertheless, even to this day, immunization coverage remains insufficient for the reasons given above.

The Central African people and their government acknowledge the importance of the Expanded Programme on Immunization in child survival and development. The EPI will only be able to have an impact if other high-priority childhood disease control programmes (protein energy and micronutrient malnutrition, malaria, ARIs, diarrheal disease, safe drinking water and basic sanitation) and new strategies (such as the Integrated Early Childhood Development, Maternal and Neonatal Mortality Reduction, etc.) are effectively integrated into the EPI as part of an efficient health system operating in true partnership with the community.

In order to regain the progress made in the area of child survival and development in the 1990s and to capitalize on the preparations made in the field during implementation of the 2003-2007 Comprehensive Multi-Year Plan, following years of social, military and political crisis, the Ministry of Public Health and Population has developed the 2008-2012 Comprehensive Multi-Year Plan for the Expanded Programme on Immunization (cMYP for EPI) in collaboration with related Ministry departments and its development partners. This is the first phase of a plan the extends until 2015 in accordance with the Global Immunization Vision and Strategy (GIVS) framework.

The Government adopted the cMYP for EPI for the new 2011-2015 period as a tool for scheduling, implementing, monitoring and evaluating immunization activities, which integrates other essential service packages in an efficient Central African health system in order to ensure the optimal health of Central African women and children during the period of 2011 to 2015.

On behalf of the Government, I would like to take this opportunity to thank the staff of the Ministry of Finance and Budget, Ministry of the Economy, Planning and International Cooperation, Ministry of Public Health, Population and HIV/AIDS Control and Prevention, as well as the staff of our development partners, particularly the WHO and UNICEF, who have contributed technical support to the creation of this cMYP for EPI with the goal of implementing activities that will benefit the country's women and children during the period in question.

My thanks also extend to the Global Alliance for Vaccines and Immunization (GAVI) for its financial support, which enabled us to complete the cMYP for EPI development process.

Finally, I would like to express the full appreciation of the Government to GAVI, UNICEF, WHO, Rotary International, the European Union and to the other development partners for their financial and technical contributions towards improving immunization coverage during the first multi-year plan.

DRAFTED IN BANGUI ON TUESDAY, 31 MAY 2011

MINISTER OF PUBLIC HEALTH, POPULATION AND HIV/AIDS PREVENTION AND CONTROL

Jean Michel MANDABA

LIST OF ACRONYMS AND ABBREVIATIONS

- **AEFI** : Adverse Effects Following Immunization
- **AIDS** : Acquired Immune Deficiency Syndrome
- **ANC** : Antenatal Care
- **ARI** : Acute Respiratory Infections
- **BCC** : Behaviour Change Communication
- **BCG** : Bacillus of Calmette and Guérin
- **BCR** : Bureau Central de Recensement [National Census Bureau]
- **CAR** : Central African Republic
- **CC** : Cold Chain
- **CDD** : Control of Diarrheal Diseases
- **cMYP** : Comprehensive Multi-Year Plan
- **COGES** : Comité de Gestion ou Conseil de Gestion [Management Committee or Management Council]
- **COOPI** : Cooperazione Internazionale
- **CSC** : Centre de Santé [Health Centre]
- **DCS** : Direction de Communication en matière de Santé [Health Communications Directorate]
- **DGSP** : Direction Générale de la Santé Publique [General Directorate of Public Health]
- **DHS** : Demographic and Health Survey
- **DMPGE** : Direction de la Médecine Préventive et de lutte contre les Grandes Endémies [Preventative Medicine and Major Endemic Control Directorate]
- **DMPM** : Direction de la Médecine Préventive et de lutte contre la Maladie [Preventative Medicine and Disease Control Directorate]
- **DPEV** : Direction du Programme Elargi de Vaccination [Expanded Programme on Immunization Directorate]
- **DTP** : Diphtheria, Tetanus and Pertussis Vaccine
- **EPI** : Expanded Programme on Immunization
- **EU** : European Union
- **FOMUC** : Force Multinationale de la CEMAC [Multinational Force of the Monetary Community of Central Africa]
- **GAVI** : Global Alliance for Vaccines and Immunization
- **GDP** : Gross Domestic Product
- **Generic EM** : Generic Essential Medicines

- **GIVS** : Global Immunization Vision and Strategy
- **GPHC** : General Population and Housing Census
- **HDI** : Human Development Index
- **HF** : Health Facility
- **HIPC** : Heavily Indebted Poor Countries
- **HIV** : Human Immunodeficiency Virus
- **ICC** : Interagency Coordinating Committee
- **ICRC** : International Committee of the Red Cross
- **IEC** : Information, Education and Communication
- **IMF** : International Monetary Fund
- **ITN** : Insecticide-Treated Mosquito Nets
- **LID** : Local Immunization Days
- **MCH** : Maternal and Child Health
- **MCV** : Measles-Containing Vaccine
- **MDG** : Millennium Development Goals
- **MEPCI** : Ministère de l'Economie, du Plan et de la Coopération Internationale [Ministry of the Economy, Planning, and International Cooperation]
- **MFB** : Ministère des Finances et du Budget [Ministry of Finance and Budget]
- **MICS** : Multiple Indicator Cluster Survey
- **MSF** : Médecins Sans Frontières/Doctors without Borders
- **MSPAS** : Ministère de la Santé Publique et des Affaires Sociales [Ministry of Public Health and Social Affairs]
- **MSPPLS** : Ministère de la Santé Publique, de la Population et de la lutte contre le SIDA [Ministry of Public Health, Population and HIV/AIDS Prevention and Control]
- **MTEF** : Medium-Term Expenditure Framework (MTEF)
- **NCSD** : National Child Survival Days
- **NGO** : Non-Governmental Organization
- **NHDP** : National Health Development Plan
- **NHIS** : National Health Information System
- **NID** : National Immunization Days
- **NMC** : National Measles Campaign
- **NRA** : National Regulatory Authorities
- **OCEAC** : Organisation de Coordination de lutte contre les Grandes Endémies en Afrique Centrale [Major Central Africa Endemic Control and Prevention Coordinating Organization]

- **OPV** : Oral Polio Vaccine
- **PHC** : Primary Health Care
- **PoA** : Plan of Action
- **PS** : Poste de Santé [Health post]
- **RED** : Reach Every District
- **RH** : Reproductive Health
- **RS** : Région Sanitaire [Health Region]
- **SFRP** : Strategic Framework for Reducing Poverty
- **SGESU** : Service de Gestion des Epidémies et de la Situation d'Urgence [Epidemic and Emergency Response Unit]
- **SIA** : Supplementary Immunization Activities
- **SMED** : Service de Maintenance des Equipements Biomédicaux [Biomedical Equipment Maintenance Unit]
- **SPEV** : Service du Programme Elargi de Vaccination [Expanded Programme on Immunization Unit]
- **STI** : Sexually Transmitted Infections
- **SWOT** : Strengths, Weaknesses, Opportunities and Threats
- **TAC-EPI** : Technical Advisory Committee for the Expanded Programme on Immunization
- **TT** : Tetanus Toxoid
- **UCM** : Unité de Cession du Médicament [Drug Procurement Unit]
- **UNDP** : United Nations Development Programme
- **UNICEF** : United Nations Children's Fund
- **USAID** : United States Agency for International Development
- **WB** : World Bank
- **WHO** : World Health Organization
- **WPV** : wild poliovirus
- **YFV** : Yellow Fever Vaccine

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SUMMARY

The Government of Central African Republic, aware of the impact of the Expanded Programme on Immunization on the reduction of under-five mortality, and committed to achieving the Millennium Development Goals (MDGs) in order to reduce poverty and promote economic growth and social development, has adopted the 2011-2015 Comprehensive Multi-Year Plan (cMYP) for the EPI (one of the high-priority programmes of the 2006-2015 National Health Development Plan), with the goal of mobilizing resources in order to implement immunization activities and other package services essential to child survival and development.

The situation analysis is provided according to the fundamental components of the immunization system, namely the five operational components: (i) providing services; (ii) integrated disease surveillance; (iii) logistics; (iv) procurement of vaccines and vaccine quality; and (v) communication; the three support components (i) management; (ii) capacity building; and (iii) funding; followed by new vaccines, new technologies and under-used vaccines.

The overall objective of the 2011-2015 cMYP is to help reduce morbidity and mortality due to vaccine-preventable diseases. The national objectives are broken down by stage.

Table I: National objectives and stages of the 2011-2015 cMYP.

Immunization Coverage Objectives	Antigen	Stage				
		2011	2012	2013	2014	2015
To attain a 90% immunization coverage at the national level for every vaccine by 2015.	BCG	80%	85%	90%	92%	95%
	Measles	70%	75%	80%	85%	90%
	OPV	70%	75%	80%	85%	90%
	YFV	70%	75%	80%	85%	90%
	DTP-HepB+Hib	70%	75%	80%	85%	90%
	TT	60%	65%	70%	75%	80%
	Pneumococcal	40%	75%	80%	85%	90%
	Rotavirus			60%	65%	70%

The amount of resources required for the period of the plan (2011-2015) is estimated at US$ 73 892 486 with an average annual amount of US$ 14 778 497. The programme costs are broken down as follows: recurrent costs 59%; capital costs 3%; campaigns 31%; and distributed costs 7%. It should be noted that the recurrent costs will increase in relation to the baseline year following the introduction of new vaccines.

The cost of immunization strategies can be broken down as: 50% fixed, 30% outreach and 20% mobile. The programme costs will increase starting in 2011, which can be explained by the implementation of supplementary immunization activities (polio, measles, MNT, YF, meningitis) as well as by the national introduction of the 13-valent pneumococcal vaccine in 2011 and the rotavirus vaccine in 2013.

Compared to the total programme cost, the proportion of secured funding, exclusive of shared costs for the period covering 2011 through 2015, is 63%. This high percentage of secured funding is influenced by GAVI's contribution towards the DTP-HepB+Hib vaccine, the pneumococcal vaccine, the rotavirus vaccine and the payment of Government staff salaries.

After the resource requirements have been analyzed, the overall gap comes to US$ 46 131 150, with an annual average of US$ 9 226 230. These gaps represent the uncovered funding needed for implementation of the cMYP. The items for which funding gaps are very high remain: vaccines and injection equipment (36%), immunization campaigns (24%), activities and other recurrent costs (33%), personnel (4%) and logistics (2%).

The Central African Government acknowledges the importance of the Expanded Programme on Immunization in child survival and development. The EPI will only be able to have an impact if other high-priority childhood disease control programmes (protein energy and micronutrient malnutrition, malaria, ARIs, diarrheal disease, safe drinking water and basic sanitation) and new strategies (such as the

Integrated Early Childhood Development, Maternal and Neonatal Mortality Reduction, etc.) are effectively integrated into the EPI as part of an efficient health system operating in true partnership with the community.

The Government is counting on the financial and technical support of GAVI, UNICEF, WHO, Rotary International, CDC-Atlanta, European Union and other development partners to achieve the objectives of the present plan.

INTRODUCTION

As a means of poverty reduction, Central African Republic (CAR), like many other countries around the world, has adopted the Millennium Development Goals (MDGs). In order to reduce maternal and child mortality, the country has made the Expanded Programme on Immunization one of its high-priority health programmes. Indeed, this is why the EPI was originally introduced to Central African Republic. To address the low initial rates of immunization coverage, which have not succeeded in reducing child mortality, the EPI of CAR has been the beneficiary of a whole series of plans to improve this performance:

- 1986–1990: Operational Plan for Accelerated Development (*Plan d'Opération pour le Développement Accélérée*, or PODAPEV) (DMPGE/MSPAS, May 1986);
- 2003: 2003-2007 Multi-Year Plan (MSPP/DMPM/SPEV, 2003);
- 2007: 2008-2012 Comprehensive Multi-Year Plan (cMYP) for the EPI.

Implementation of the 2008-2012 cMYP, with support provided by UNICEF, the WHO and GAVI, in addition to some support from other partners (ICRC, EU/COOPI, MSF, etc.), has not enabled CAR to achieve targeted results due to inadequate funding of activities, insufficient logistics resources (cold chain, transportation), inadequate quality and quantity of human resources and the precarious security situation in certain parts of the country.

This situation resulted in a resurgence of polio epidemics in 2008 and 2009, and persistent yellow fever epidemics from 2006 to 2010.

Despite the multiple problems described above, the Central African EPI must overcome certain challenges at the present time, such as: increasing and maintaining the high rates of routine immunization coverage, polio eradication, measles pre-elimination, yellow fever control, elimination of maternal and neonatal tetanus, immunization safety, the introduction of new vaccines and health systems strengthening.

The present 2011-2015 Comprehensive Multi-Year Plan for the EPI of the CAR is structured in the following manner:

1. Background;
2. Critical analysis of the situation;
3. National priorities;
4. Vision and objectives of the cMYP;
5. Objective-driven strategies and activities;
6. Activity timeline;
7. Analysis of programme costs and funding;
8. Organization of the cMYP implementation;
9. cMYP monitoring and evaluation mechanism;
10. 2011 action plan.

1. BACKGROUND

1.1. External health system funding

1.1.1. Geographical overview

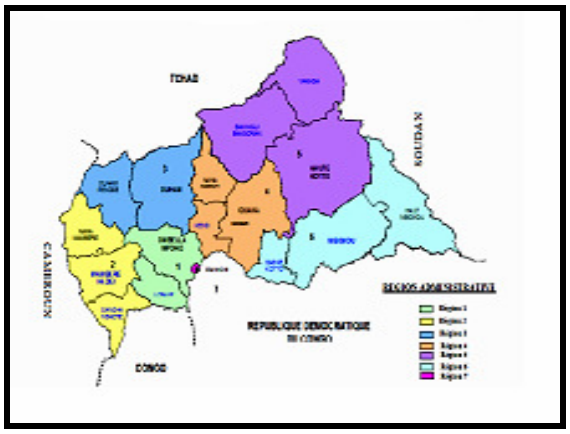

Figure 1 : Administrative divisions of the CAR

Located in the heart of Africa, Central African Republic covers a land area of 623 000 km^2. It shares a border to the east with Sudan, to the west with Cameroon, to the north with Chad and to the south with the Democratic Republic of the Congo (DRC) and the Republic of the Congo (Congo-Brazzaville).

The climate is equatorial and characterized by two seasons: a rainy season from May to October and a dry season extending from November until April. During the rainy season, earth-bound communications between the capital of Bangui and the northern prefectures are virtually cut-off, particularly in Vakaga and Bamingui-Bangoran, located 1250 km and 675 km from the capital, respectively. This makes certain kinds of interventions difficult.

The internal network of roads in CAR is mostly composed of unpaved rural trails that are hard to navigate during the rainy season, which means that certain locations become isolated. Aviation routes are not well-developed because the country has less than 20 unpaved airports, and some of them are practically unusable during the rainy season, a result of the rain for some and a lack of maintenance for others.

The remote nature of Central African Republic represents one of the most serious handicaps to its development, since the country has no access to the sea for its imports and exports except for the port of Douala in Cameroon (1470 km), reachable by road, and the port of Pointe Noire in the Republic of the Congo (1710 km), reachable by river. Nonetheless, certain navigable waterways do exist, which opens up some locations that are normally inaccessible by roadways.

1.1.2. Social and demographic data

Socially, the country is equipped with a sociocultural glue among communities, which traces its origins back to the history of Central Africa and has been consolidated through the use of a single national language: Sango. This harmony in the midst of ethnic diversity is also one of the cornerstones of national unity.

From a demographic perspective, the Central African population is estimated at 4 570 799 inhabitants in the year 2011 (2003 GPHC corrected projection), with a natural growth rate of 2.5% and a mean population density of 6.6 inhabitants per km2, ranging from 10041.38 inhabitants per km^2 in Bangui to 0.79 inhabitants per km^2 in Bamingui-Bangoran (Fig. 1). The central, eastern and southeastern regions occupy more than half of the country's territory (53%) even though they only contain 20% of the total population.

This population is mostly rural, primarily composed of young people (approximately 49.4% aged under 18 years of age) and features slightly more females than males. The principal demographic indicators coming from the General Population and Housing Census (GPHC) of 2003 are summarized in Table II below.

Table II: Updated principal social and demographic indicators (Source: 2003 GPHC)

Indicators	2003 Levels
Total population	3 895 139 inhabitants
Intercensal growth rate	2.5%
Urban population	38% of the total population
Rural population	62% of the total population
Children under one year	3.5% of the total population
Surviving infants	3.04% of the total population
Children 11-to-6 months old	1.75% of the total population
Children 12-to-59 months old	13.8% of the total population
Children 6-to-59 months old	15.55% of the total population
Children under five years	17.3% of the total population
Children under 15 years	40.7% of the total population
Women of childbearing age (15 to 49 years)	24.5% of the total population
Pregnant women	4% of the total population
Synthetic index of fertility	**National average: 5.1 children**/woman **Urban setting: 4.7 children**/woman **Rural setting: 5.4 children**/woman
Crude birth rate	**National average: 39.1 per 1000** **Urban setting: 38.2 per 1000**; **Rural setting: 39.4 per 1000**
Infant Mortality Rate	**106 death per 1000 live births**
Under 5 Mortality Rate	176 deaths per 1000 children < 5 years
Maternal Mortality Ratio	596 per 100 000 live births
Illiteracy rate	**National average:** 57.3% **Men:** 46.2% **Women:** 68 % **Urban setting**: 36.2% **Rural setting**: 70.9%

Source: 2003 GPHC

With an intercensal growth rate of 2.5% between the 1988 GPHC and 2003 GPHC, the population totals of CAR and those of the groups targeted by the EPI and other immunization-linked service packages will grow according to Table 2 below.

Table III: Projected EPI target group totals and totals for other immunization-linked service packages (2003 GPHC)

Target groups	2010	2011	2012	2013	2014	2015
Total population	4 479 442	4 570 799	4 663 731	4 758 452	4 854 905	4 953 017
Women of Childbearing Age	1 097 463	1 119 846	1 142 614	1 161 062	1 184 597	1 208 536
Pregnant women	179 178	182 832	186 549	190 338	194 196	198 121
Children 0 to 15 years old	1 823 133	1 860 315	806 825	1 936 690	1 975 946	2 015 878
Children 0 to 59 months old	774 943	790 748	806 825	823 212	839 899	856 872
Children 6 to 59 months old	696 553	710 759	725 210	740 177	755 180	770 442
Children<1 year old	156 780	159 978	163 231	166 546	169 922	173 356
Surviving infants	136 175	138 952	141 777	144 657	147 589	150 572

Source: 2003 GPHC

1.1.3. Overview of the country's political, institutional and administrative structure

With respect to administrative divisions, Central African Republic is subdivided into seven (7) regions, 16 prefectures, 72 sub-prefectures, 2 administrative outposts (*postes de contrôle administratif*), 177 communes (including the 8 arrondissements of Bangui, the seventh administrative region), 8294 villages and 1422 neighborhoods.

Health units are divided up in accordance with the administrative subdivisions, but it should be noted that health districts 24 through 35 are presently undergoing administrative redistribution in order to meet the standards for a district. To this end, the number of health districts in health regions 1 and 6 have increased from 2 to 3 and 5 to 7 health districts, respectively, as part of the 9th EDF project.

From a political and institutional perspective, political and social stability has been reinforced through implementation of the Inclusive Political Dialogue (*Dialogue Politique Inclusif*) in December 2008, which united all the country's political stakeholders. The final recommendations of this dialogue constituted the road map for governmental activities in preparation for the elections held in January 2011.

1.1.4. Overview of Socioeconomic Data

The Central African economy is dominated by the resource-based sector, representing 52.2% of the Gross Domestic Product (GDP) in 2008, followed by the service-based sector (30.5%) and the post-production sector (12.1%). Subsistence farming (28.5% of GDP) and herding (12.5% of GDP) constitute the primary activities of this resource-based sector.

The economic situation has improved significantly along with the implementation of the Medium-Term Expenditure Framework, supported by the International Monetary Fund (IMF) as part of the 2006 Poverty Reduction and Growth Facility (PRGF) programme.

The CAR has developed a Poverty Reduction Strategy Paper (PRSP), which was presented to our partners during the round-table conference held in Brussels in October 2007. Before implementation of this paper stood the task of mobilizing the actual financial resources expected from both internal and external partners.

Reaching the completion point of the HIPC initiative qualified Central African Republic for the Multilateral Debt Relief Initiative (MDRI).

With respect to public finances: the budgetary appropriations allocated to the Department of Health in 2010 represented only 8.98% of total State expenditures. During this same period, the share of the health sector's budget allocated to capital expenditures was 55.8%. In comparison, the share allocated to operational and personnel expenditures was 44.2% and 17.8%, respectively.

From 2008 to 2010, 8.3 billion FCFA were spent on the Expanded Programme on Immunization out of a programme total of 15.5 billion FCFA, totally 53.2% of the projections for the period.

Furthermore, it should be noted that the budget share allocated to the EPI saw a decline between 2008 and 2010, from 4 462 113 768 CFA/year in 2008 to 4 377 052 477 CFA/year in 2010 – a 10% drop.

This poor rate of implementation and slow growth of the EPI's budget can be partially explained by the fact that a portion of the GAVI funding for Immunization Services Support (ISS) in 2009 and 2010 was frozen, and by the non-payment of funds promised by the public treasury.

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Nevertheless, it should be noted that the budget allocated to the EPI experienced a decline between 2008 and 2010, going from 4 462 113 768 CFA/year in 2008 to 4 377 052 477 CFA/year in 2010 – a 10% drop. This drop in EPI funding in 2010 is due primarily to the discontinuation of GAVI funding for Immunization Services Support (ISS).

Table IV: Trends in public funding for health from 2006 to 2011 (in thousands of FCFA)

Type of Expenditure	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*
Operational expenditures	**5,713,810**	**6,501,410**	**7,130,113**	**7,272,220**	**8,210,407**	**8,568,520**
Personnel expenditures	3,462,670	3,462,670	2,983,883	3,159,720	3,307,107	3,397,220
Expenditures on goods and services	2,251,140	3,038,740	4,146,230	4,112,500	4,903,300	5,171,300
Capital expenditures	**3,433,092**	**4,605,268**	**4,931,330**	**4,525,225**	**10,366,750**	**15,472,264**
State Budget	232,000	297,000	456,600	753,675	1,553,750	2,073,264
External funding	3,201,092	4,308,268	4,474,730	3,771,550	8,813,000	13,399,000
Total health expenditures	9,146,902	11,106,678	12,061,443	11,797,445	18,577,157	24,040,784
Total State expenditures	129,345,865	136,869,120	150,919,146	177,272,865	206,898,550	236,931,685
Health budget as a % of the overall budget	7.07%	8.11%	7.99%	6.65%	8.98%	10.15%
Gross Domestic Product (GDP)	817,900,000	880,000,000	888,099,000	935,535,000	979,575,000	1,048,998,000
GDP growth rate	4.3%	4.0%	2.0%	1.7%	2.6%	4.2%
Health budget as a % of the GDP	1.12%	1.26%	1.36%	1.26%	1.90%	2.29%
Population	4,133	4,216	4,302	4,390	4,479	4,570
Health budget per capita (in hundreds of FCFA)	2,213.1	2,634.4	2,803.7	2,687.3	4,147.6	5,260.6

Source: 2006, 2007, 2008, 2009, 2010, 2011 Finance Laws; 2003 GPHC; Macroeconomic Framework (MPECI)

The share of the budget allocated to the MSPPLS each year is trending upward; it increased from 9.1 billion FCFA in 2006 to 24 billion FCFA in 2011. However, the overall health budget as a percentage of the GDP remains small, dropping from 1.12% in 2006 to 2.29% in 2011. The proportion of health expenditures within the State's budget remains small, in spite of a 10.15% gain in 2011.

1.1.5. Overview on human development in the CAR

According to the 2010 UNDP Human Development Index (HDI) report, the CAR is ranked 178th out of 179 countries. In the case of the Gender-Specific Human Development Index, it is ranked 153rd out of 177 countries.

1.2. Internal environment of the health system and the EPI

1.2.1. Health System

1.2.1.1. Overview of the population's state of health

A review of recent health indicator trends in CAR reveals that the population's state of health in both rural and urban settings is precarious and worrisome.

In fact, the overall mortality rate has gone from 17 in 1988 to 20.18 in 2003 (2006-2015 NHDP). In fifteen years, the population's life expectancy at birth has dropped by over 6 years, from 49 years in 1988 to 43 years in 2003. After falling from 212 in 1988 (GPHC) to 157 in 1995 (1994/95 DHS), the under-five mortality rate is now undergoing constant expansion (194 in 2000 according to MICS II and 220 in 2003 according to the GPHC report published in June 2006).

Furthermore, Central African Republic remains the country in which the most pregnant women die. Out of 100 000 live births, 1355 maternal deaths were recorded in 2003 (GPHC), versus 683 in 1988 (GPHC).

According to the 2006 MICS survey, infant morbidity is very high across the board from illnesses such as:

- Pneumonia (19%);
- Malaria (19%);
- Diarrhea (15%);
- AIDS (12%);
- Global acute malnutrition (10.1% including 2.3% with severe acute malnutrition);
- Neonatal conditions (27%).

- **Malaria**

Across the nation, malaria affects 37.66% of the population, of which approximately 32% are children under 5 years of age, with a case fatality rate of 19% (MICS 2006). In 2005, the country adopted a new malaria control approach and has received funding from the Global Fund to Fight AIDS, Tuberculosis and Malaria.

- **ACUTE RESPIRATORY INFECTIONS (ARIS)**

With a prevalence rate of 19% according to 2006 MICS data, ARIs, just like malaria, are ranked first among causes of death for children under 5 years of age.

- **Diarrheal diseases**

Diarrheal diseases represent 15% of the cause of death among children under 5 years (2006 MICS-III)

- **Diseases targeted by the Expanded Programme on Immunization (EPI)**

The national immunization programme, very often invoked in response to outbreaks, has been less efficient in managing the routine EPI since 2008. This aspect will be developed in the situation analysis.

- **Malnutrition**

According to the 2006 MICS survey, malnutrition remains endemic throughout the country, with downward trends since 1995, the date of the first national survey.

In CAR, almost 1/3 of children under five years are moderately underweight (28%) and 8% are considered to be severely underweight.

- **HIV/AIDS**

In CAR, HIV/AIDS is in the process of becoming the first-ranked cause of morbidity and mortality. Indeed, the overall prevalence of HIV is 6.2%. Within the cohort of 15-to-49-year-olds, twice as many women as men are affected (7.8% versus 4.3%). The epidemic is more concentrated among adults. This prevalence is twice as high in urban areas than in rural areas. There are very significant disparities among geographic regions, ranging from 3.1% to 13.6% (2006 MICS).

- **Reproductive health problems among pregnant women**

These problems are linked to an elevated maternal mortality (1355 for every 100 000 live births) due to obstetric and perinatal complications as well as complications from abortions. The Ministry of Public Health and Population has developed a road map to accelerate the reduction of maternal and newborn mortality. Interventions to do so will be sustainable as part of the GAVI Phase 2 support for Health Systems Strengthening.

- **Other endemics**

CERTAIN ENDEMICS ARE GROWING WITHIN KNOWN, ISOLATED POCKETS (HUMAN AFRICAN TRYPANOSOMIASIS (HAT) AND ONCHOCERCOSIS). Others affect the entirety of the Central African population (leprosy, intestinal parasitosis, intestinal and urinary bilharziasis and hepatitis, mostly hepatitis type B).

1.2.1.2 Principal health system problems

Law 89.003 of 29 March 1989, which sets general health guidelines in CAR, was clearly defined and technically validated in 2001 and revised in 2004. This revision has unfortunately not yet been adopted by the Government.

Organizational structure and operations of the health system

Applying the WHO's three-phase scenario for health development in the region of Africa, adopted by the 35th session of the Regional Committee held in Lusaka in 1985, the national health system of Central African Republic is organized into a three-level pyramid: national-, regional- and district-level.

These three levels are clearly defined in Decree No. 05.121 of 6 June 2005, regarding the organizational structure and operations of the Ministry of Public Health and Population, and determining the characteristics of the Ministry.

Health service management

a) Availability of services

In **Ministerial Decree No. 185/MSPP/CAB/SG/DGSPP**, of 13 January 1994, the country established a Minimum Package of Activities (MPA) by level and health facility category. The application of this MPA remains very theoretical due to the lack of human, material and financial resources. However, a process of updating standards, as well as a process of developing human resources, are both underway.

b) Accessing services

Geographic access to health services within a 5-km radium has increased from 45% in 1995 (DHS-CAR 1994/95) to 65.2% in 2000 (MICS). This improvement has hidden disparities associated with place of residence (98% for urban areas versus 47% for rural areas). It should be noted that at least 25% of the population in the country's hinterland must either walk more than 10 km or spend part of their savings to reach a health facility.

The barriers that limit access to health services are numerous and exist on several levels: administrative, financial, geographic, cultural and behavioral. Major efforts to raise awareness among service providers and service recipients should be planned to minimize these barriers and improve the population's access to health care services.

c) Use and quality of services

Regarding the use of health care services and their quality, the use of health services remains very limited and their quality very mediocre.

Infrastructures

With respect to health care infrastructure, CAR has a total of 787 health facilities, including 117 private facilities and 670 public facilities, resulting in a ratio of one health facility for every 4000 inhabitants.

The public health facilities include: 4 national hospitals, 6 regional hospitals (including the University Medical Centre of Bimbo under construction), 12 prefectural hospitals, 31 category A health centres, 22 category B health centres, 104 category C health centres, 11 category D health centres, 13 category E health centres, 445 health posts (*postes de santé*), 17 essential generic medicines storage facilities, 1 national clinical biology and public health laboratory, 1 STI/AIDS referral centre, 1 national blood transfusion centre and one drug transfer unit (*Unité de Cession de Médicament*).

Health human resources (HHR)

The Ministry of Public Health and Population ascribes an important role to health human resources (HHR) as part of the implementation of its national health policy.

The country is very concerned by the qualitative and quantitative availability of health personnel capable of performing the tasks essential to the execution of national health policy.

Particular emphasis is placed on the need to augment the number of certain professional categories, such as pharmacists, dental surgeons, physicians of various medical specialties and public health physicians, as well as senior academic physicians.

Furthermore, the need for specialized allied health personnel is also a concern for national health officials, as well as continuing education for personnel working in peripheral health facilities.

Accordingly, the health personnel workforce jumped from 2651 in [missing text] to 3314 in 2005 thanks to the Government's efforts in recruiting 584 health personnel. However, despite these efforts, these workforce numbers remain below the 4200 personnel expected by the NHDP to ensure a minimum acceptable level of services for the population. This situation is made even worse by an uneven distribution of qualified personnel across the nation. For example, only 17% of physicians practice in the country's hinterlands, and almost 100% of midwives practice in the capital of Bangui where under 30% of the population lives. This personnel imbalance has recently increased due to the latest crises, which emptied selected regions of their health personnel. To this add the insufficient level of retraining/refresher courses available to hone the skills of professionals.

1.2.2 The Expanded Programme on Immunization of CAR

History of the EPI

The EPI was integrated into Central African Republic's health programmes in 1979. Faced with the low immunization coverage reported up to 1985, the Government opted for the operational plan for accelerated development of the Expanded Programme on Immunization (PODAPEV, DMPGE/MSPAS, May 1986) during the years from 1986 to 1990, with the support of several multilateral and bilateral bodies and several non-governmental organizations (NGOs). Implementation of this plan enabled CAR to achieve significant increases in immunization coverage among children under one year and pregnant women. The country was then awarded the UNICEF gold medallion at the World Summit for Children held in New York in 1987.

In response to the drop in immunization coverage recorded in the 1990s, CAR once again developed plans to improve these performances:

- 2003: 2003-2007 Multi-Year Plan (MSPP/DMPM/SPEV, 2003) and the support of the Global Alliance for Vaccines and Immunization (GAVI) following an external review of the EPI in 2002.
  The country was awarded second prize, called the *"prix d'excellence et d'encouragement*", at the meeting of the TFI held in Maputo in 2006.
- 2007: The 2007-2011 Comprehensive Multi-Year Plan (cMYP) was converted to the 2008-2012 cMYP, a high-priority component of the 2006-2015 National Health Development Plan, developed with the goal of mobilizing resources to implement immunization activities.

Implementation of the 2008-2012 cMYP, with support provided by UNICEF, the WHO and GAVI, in addition to intermittent support from other partners (ICRC, EU/COOPI, MSF, etc.), has not enabled CAR to achieve targeted results due to inadequate funding of activities, insufficient logistics resources (cold chain, transportation), inadequate quality and quantity of human resources, as well as the precarious security situation in certain parts of the country.

a) Structure of the EPI leadership institutions in CAR

Directorate of the Expanded Programme on Immunization

This is one of the technical directorates of the General Directorate of Public Health within the Ministry of Public Health, Population and HIV/AIDS Prevention and Control, and is subdivided into two departments: The Department of Logistics and Administrative Support and the Department of Monitoring and Data Management.

These departments are organized into the following sections:

- the cold chain, transportation and communication section;
- the scheduling, monitoring and evaluation section;
- the vaccine and other supply management section;
- the data management section;
- the secretariat.

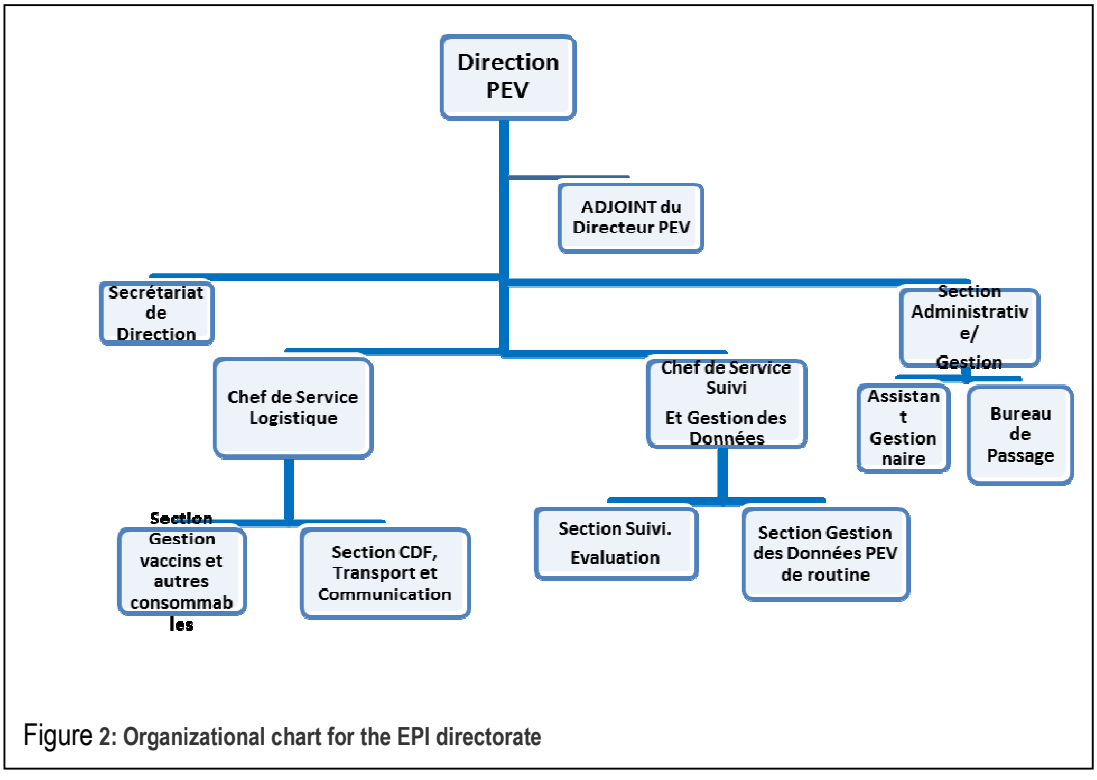


Figure 2: **Organizational chart for the EPI directorate**

[Translated key to diagram above:]

Direction PEV = EPI Directorate	Section CDF, Transport et Communication = Cold Chain, Transportation and Communication Unit	Section Administrative et Gestion = Administration and Management Unit
Secrétariat de Direction = Directorate Secretariat	ADJOINT du Directeur PEV = EPI Deputy Director	Assistant Gestionnaire = Assistant Manageer
Chef de Service Logistique = Head of Logistics Unit	Chef de service Suivi et Gestion des Données = Head of Monitoring and Data Management	Bureau de passage = Transit Office
Section Gestion vaccins et autres consommables = Vaccine and Other Supply Management Unit	Section Suivi, Evaluation = Monitoring and Evaluation Unit	Section Gestion des Données PEV de routine = Routine EPI Data Management Unit

At the regional level, there is a regional EPI supervisor and a regional focal point for integrated disease surveillance.
At the health prefect level, there is a regional EPI coordinator and a prefectural focal point for integrated disease surveillance.

Management bodies of the Expanded Programme on Immunization in CAR
Interagency Coordinating Committee (ICC) for the EPI: principal body responsible for oversight of the Expanded Programme on Immunization's activities (Ministerial Decree No. 0044 MSPP/CAB/SG/DGSPP/SPEV of 7 February 2002). It is composed of: the leadership of the Health Department, departments of associated ministries (the Ministries of Finance and Budget, Economy, Planning and International Cooperation; of Interior and Territorial Administration; of National Defense and Communications) bilateral partners and national and international non-governmental organizations (NGOs).

Technical Advisory Committee to the EPI (TAC-EPI): a multisectoral and multidisciplinary structure that supports the ICC in its decision-making (Decree No. 113 MSPP/CAB/SG/DGSPP/DMPM/SPEV of 11 March 2003) This committee operates under the chairmanship of the General Director of Public Health.

1.2.2.2 Target population and immunization schedule

Target populations
The routine EPI is applied to children 0 to 11 months of age in the case of the following antigens: BCG, DTP-HepB, Hib, OPV, MCF, YFV and TT, which is administered to pregnant women.
The populations targeted for routine immunization and supplementary immunization activities are determined based on the following proportions of the total population, as described in Table 6.

Table V: EPI target populations

Group	Population proportion	Immunization strategy and other interventions
Children 0-11 months of age	3.5%	Routine EPI
Children 0-59 months of age	17.3%	NIDs and distribution of ITNs
Children 6 months - 14 years of age	46%	Measles control, catch-up campaign
Children 6-59 months old	15.55%	Measles control, catch-up campaign
Children 6-59 months old	15.55%	Prevention of Vit. A deficiency
Children 12-59 months old	13.8%	Mebendazole deworming
Pregnant women	4%	Routine EPI, elimination of MNT and distribution of ITNs
Women of Childbearing Age	24.5%	MNT elimination (campaigns)

Immunization schedule

Tables VI and VII below summarize the immunization schedule currently in use in Central African Republic. The introduction of new vaccines will have to comply with the national immunization schedule. The pneumococcal vaccine and rotavirus vaccine will be introduced to the routine EPI in 2011 and 2013, respectively.

Table VI: For children (0 to 11 months)

Contact	Age	Recommended vaccines
1	At birth	BCG, OPV-0
2	6 weeks	DTP-**HepB+Hib1, OPV1,** PCV13-1, **Rota1**
3	10 weeks	DTP-**HepB+Hib2, OPV2, PCV13-2, Rota 2**
4	14 weeks	DTP-**HepB+Hib3 , OPV3, PCV13-3**
5	9 months	MCV, YFV

**The new vaccines will be integrated according to this schedule*

Table VII: For pregnant women

VACCINE	AGE OF ADMINISTRATION
TT1	At first contact
TT2	1 months after TT1
TT3	6 months after TT2 or during the next pregnancy
TT4	1 year after TT3 or during the next pregnancy
TT5	1 year after TT4 or during the next pregnancy

2. SITUATION ANALYSIS

The situation analysis is presented in accordance with the following 8 components of the immunization system:

- The five operational components: (i) Provision of services; (ii) integrated disease surveillance; (iii) logistics; (iv) Vaccine procurement and quality; (v) communications.
- The three support components: (i) management; (ii) capacity building; and (iii) funding.

2.1. Provision of Services

2.1.1 Routine EPI

The routine EPI is essentially based on the Reaching Every District (RED) approach.

The immunization strategies implemented at the national level are: the fixed strategy, the outreach strategy and the mobile strategy.

2.1.1.1. Routine immunization coverage

The comparative analysis of the coverage trends over the past few years of implementing the 2008-2012 multi-year plan shows fluctuations over time.

Table VIII: Immunization coverage trends at the national level from 2008 to 2010

Antigen	Year of 2008		Year of 2009		Year of 2010	
	Objectives (%)	IC	Objectives (%)	IC	Objectives (%)	IC
BCG	90	70	92	87	94	64
OPV3	90	54	92	76	94	56
DTP-HepB+Hib1	90	87	92	76	94	75
DTP3-HepB3+Hib3	90	51	92	76	94	57
MCV	90	71	92	94	94	63

YFV	90	60	92	93	94	64
TT2+	70	103	85	107	90	50

Source: EPI

Table IX: Continuity of use and capacity of the EPI departments to administer a vaccine series (DTP-Hep B+Hib)

Indicators	**2008**	**2009**	**2010**
DTP3-Hep B3 + Hib3 IC	51%	76%	57%
% of districts with DTP3-Hep B3 + Hib3 > 80%	2	11	1
Dropout rate DTP1-HepB1+Hib1- DTP3-Hep B3 + Hib3	41	31	24
% of health districts with dropout rate > 10%	24	22	24

Source: EPI

As these results show, no coverage objective targeted in the 2008-2012 cMYP was achieved from 2008 to 2010. Nonetheless, in 2009 immunization coverages were improved thanks to the implementation of 2 rounds of intensified immunization activities in November and December and a round of Mother and Child Week. This allowed us to raise immunization coverages. The pentavalent vaccine went from 55% to 76%. Furthermore, the routine EPI benefited from the following factors:

- The use of an immunization schedule by all stakeholders;
- The implementation of supportive supervision and outreach strategy activities thanks to catalytic funds;
- The implementation and expanded use of the DQS tool for supervision;
- An EPI data quality monitoring system at the national, regional and operational level; Regional and national coordinating meetings, review and data harmonization meetings;
- Organization of intensive immunization activities (accelerated immunization);
- Holding micro-planning workshops;
- Proportion of EPI centres across the entire country that are operational;
- Evaluating the introduction of the pentavalent vaccine;
- Distributing updated management tools to all levels;
- Availability of personnel trained in EPI management at all levels; MLM, EPIVAC, computerized data management, DQS tools, SURVAC, etc.).

On the other hand, the overall poor performance of the routine EPI can be explained by;

- Not enough immunization sessions for the fixed or outreach strategies;
- Insufficient/obsolete vehicle assets for the outreach strategy;
- Inadequate supportive supervision;
- Low community involvement in the management of the EPI due to insufficient knowledge of the importance of immunization and the immunization schedule;
- Insufficient number of personnel trained in EPI management at the health facility level;
- Stock-outs of certain management tools (immunization cards and records);
- Lack of use of immunization hours convenient to the rural population;
- Insufficient implementation of the techniques learned in training (DQS, EPIVAC, SURVAC, MLM, etc.);
- Insufficient capitalization of the gains made during the SIAs to strengthen the routine activities.
- Poor integration of the child survival interventions into the routine EPI (LLITNs, Vitamin A, mebendazole);

- High dropout rate because the system of tracking down those lost to follow-up is not operational (no schedules, no active research in the community).
- Insufficient monitoring of data at the operational level: Low level of completeness and timeliness for routine data;
- Lack of motivation among community health workers to organize EPI activities due to the irregular payment of salaries and poor working conditions;
- Lack of strategic understanding of the target population in health facilities;

In summary, it appears that CAR has no problem with access to services (Penta1 IC >80%), on the other hand, the use of services represents a major weakness in the provision of immunization services (Penta1-Penta3 dropout >10%).

2.1.2. Immunization coverage for Supplementary Immunization Activities:

As part of polio eradication and the accelerated campaign against EPI target diseases and epidemic-prone diseases, CAR organized a series of immunization campaigns from 2008 to 2010:

- 1 round of the measles follow-up immunization campaign in 2008;
- 3 rounds of tetanus immunization campaign in 2008;
- 4 rounds of the yellow fever immunization campaign: 2 rounds in 2008, 1 round in 2009 and 3 rounds in 2010;
- 9 rounds of polio NIDs: 4 rounds in 2008, 8 rounds in 2009 and 4 rounds in 2010;
- 1 round of the immunization campaign against pandemic influenza A (H1N1) in 2010.

The results of the SIAs are provided in Tables X, XI and XII below:

Table X: Immunization coverage from polio NIDs from 2008 to 2010.

Year	Type of SIA	Population	Immunization Coverage					
			1st round	2nd round	3rd round	4th round	5th round	6th round
2008	Polio NID	744 308	96%	100%	100%	98%	99%	
	Ouham NID	70 219	99%	-	-	-	-	
2009	Polio NID	757 097	96.93%	99%	96%	93%	100%	96%
	Polio NID Region No. 3	155 789	111%	81%				
	Polio NID	774 943	95%	102%	91%	94%		
2010	Polio NID	774 943	95%	102%	91%	94%		

Table XI: Immunization coverage after the yellow fever campaigns from 2008 to 2010

Year	Type of SIA	Population	Number vaccinated	Immunization coverage
2008	Yellow fever response Bozoum	56 525	56 519	100%
	Yellow fever response Lobaye	166 582	130 628	78%
	YF response Sangha Mbaéré	12394	11215	91%
2009	Yellow fever response Ombella Mpoko	201608	190919	95%
	Haute Kotto	95519	72637	76%
2010	Yellow fever response campaign: Ombella Mpoko	177722	142620	80%
	Yellow fever response campaign: Lobaye	30604	26624	87%
	Yellow fever response campaign: Ouham Pendé	19004	17089	90%
	Yellow fever response campaign: Nana Mambéré	38907	34065	84%

	Yellow fever response campaign: Mambéré Kadéï	61009	58986	97%
	Yellow fever campaign Bangui, Health Region 2 and Basse-Kotto (phase 1)	1711518	1,453,754	91%
	Yellow fever campaign health regions 3 and 4 (phase 2)	1330625	1166335	88%

Table XII: Results of the measles follow-up campaign in 2008

Year	Intervention type	Target population		Immunization coverage
2008	Measles campaign	669017	683,302	102%
	LLITNs	744,308	852,918	115%
	Soap	744,308	868100	117%

The results obtained from the polio SIAs are satisfactory overall, and resulted in a cessation of the circulation of wild poliovirus (WPV) in August 2009. Two rounds of preventive polio SIAs are scheduled for April and May 2011.

In spite of the good administrative coverages obtained, the results of independent evaluations reveal inadequacy with respect to the quality of these NIDs.

However, attention should be paid to the insufficient capitalization of SIA achievements obtained to consolidate routine activities, which is the very foundation of the programme's performance.

2.1.3. EPI experience in adopting interventions

There have been plans since 2004 to adopt child survival interventions as part of the routine EPI of CAR, but this has not yet taken place.

However, during certain SIAs organized by the country, other service packages have been included, notably vitamin A supplementation amongst children ages 6 to 59 months, deworming of children ages 12 to 59 months using mebendazole/albendazole and the distribution of insecticide-treated mosquito nets (ITNs) to children under 5 years of age and to post-partum women.

Tables XIII and XIV below show the deworming coverage achieved among children ages 12 to 59 months and the vitamin A supplementation coverage among children ages 6 to 59 months.

Table XIII: Albendazole coverage from 2008 to 2010

Year	Interventions including mebendazole/albendazole deworming	Intervention dates	Areas covered	Target age bracket	Number of children targeted	Coverage as a %
2008	MCW	May	National	12-59 months	**580 030**	**75%**
2009	MCW	June	National	12-59 months	**605 838**	**89%**
	SIAs	December	National		**605 838**	**72.20%**
2010	Polio NID	October	National	12-59 months	**631 586**	**72.88%**

Table XIV V: Vitamin A coverage from 2008 to 2010

Year	Interventions including vitamin A supplementation	Intervention dates	Areas covered	Target age bracket	Number of children targeted	Coverage rate in %
2008	MCW	May	National	6-59 months	**653 654**	**75%**

	MCW	May	National	6-59 months	**682 666**	**95%**
2009	SIAs	December	National	6-59 months	**682 666**	**87%**
2010	Polio NID	October	National	6-59 months	**711 678**	**83.17%**

Source: EPI/MSPP

Table XV: Coverage of LLITN distribution in 2010

Year	Households counted	LLITNs distributed	Coverage rate in %
2010	971 084	948 274	**97.65%**

2.2. Integrated disease surveillance

The data collected come from the core system, both public and private. These data are then compiled, analyzed and distributed to every level and every partner.

Prior to 1998, epidemiological surveillance in CAR was done using sentinel sites primarily composed of the hospitals and category A centres. Starting in 1998, and with the help of WHO, the Directorate of Preventative Medicine and Disease Control established an integrated disease surveillance system coordinated through 5 regional focal points.

Since 2005, the system was decentralized and 26 focal points were formed to cover the 7 health regions, 16 health prefectures and the 8 CSS divisions of Bangui.

The Pasteur Institute of Bangui and the National Biological and Public Health Laboratory play an important role in the confirmation of cases whenever case-based surveillance is used.

This surveillance is based on the reporting of the EPI target diseases and epidemic-prone diseases.

All the public and private health facilities are involved in integrated disease surveillance with weekly and monthly reporting.

As part of epidemiological surveillance strengthening, CAR has benefitted since 2010 from the "Surveillance Strengthening Project in Central Africa" (SURVAC), which is a five-year pilot project implemented in three Central African countries, namely Cameroon, Central African Republic (CAR) and the Democratic Republic of the Congo (DRC).

The objectives of this project are to work with the existing national programmes in order to:

Build the capacities of the surveillance and response system through the training of personnel via a regional epidemiology and field laboratory training programme for Central Africa called the Central African Field Epidemiology and Laboratory Training Programme (CAFELTP), in addition to the improvement of infrastructure and other necessary measures.

Implement a high-quality disease and response surveillance system based on tangible laboratory results, for vaccine-preventable diseases, epidemic-prone diseases and other high-priority diseases and syndromes.

Develop advocacy capabilities in order to support laboratory, surveillance and response activities.

Furthermore, CAR is going to strengthen its active surveillance of diarrheal diseases and respiratory infections as part of the SURVAC project.

Over the past three years, the EPI target disease surveillance system has made some very significant achievements, as reveal the results below:

Acute flaccid paralysis (AFP) surveillance

According to the certification standards, the major performance indicators for AFP surveillance are: Non-polio AFP detection rate of > 2 per 100 000 children < 15 years of along with a > 80% percentage of stool specimens collected within 14 days.

In spite of this performance, the country experienced an outbreak in 2008 consisting of 3 cases of wild poliovirus type 1, and in 2010, 14 cases of wild poliovirus type 3. However, no WPV cases have been reported since September 2009.

Table XV: AFP surveillance performance indicators 2008 to 2010

Année / Indicateurs	2008	2009	2010
Cas de PFA attendu/ an	21	18	18
Cas de PFA investigués	141	163	136
Taux PFA non-polio	6.49	8.06	7.5
% PFA avec selles dans les 14 jours	96%	90%	90%
% Entérovirus non polio	33%	16%	23%
Polio virus sauvage	3	14	0
Compatibles	0	5	2

[Translation of Chart Key:]
année = year
indicateurs = indicators
Cas de PFA attendu / an = Exoected AFP cases per year
Cas de PFA investigués = AFP cases investigated
Taux PFA non-polio = Non-polio AFP incidence
% PFA avec selles dans les 14 jours = % AFP with stool specimens collected within 14 days
% Entérovirus non polio = % Non=polio enterovirus
Polio virus sauvage = Wild poliovirus
Compatiibles = compatible [end key]

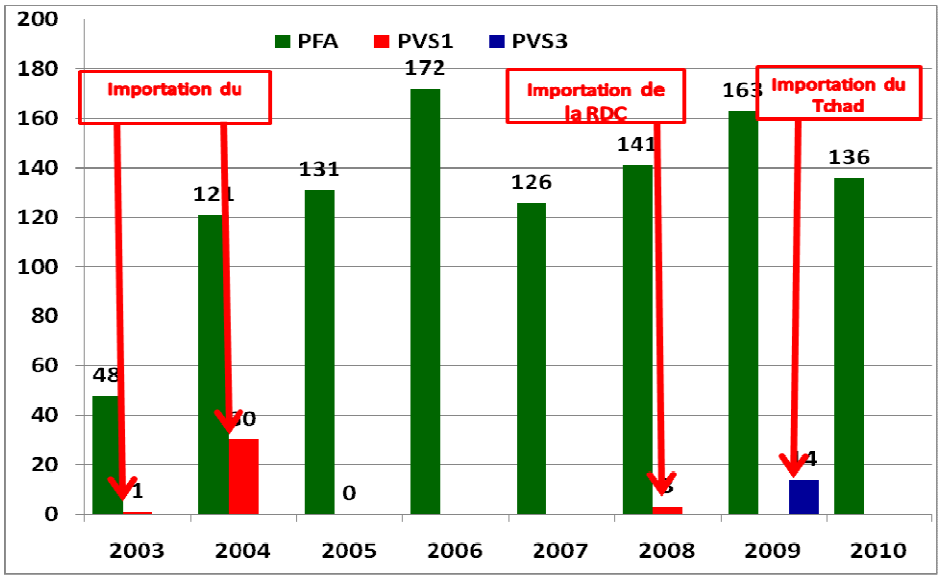


Figure 3: *AFP and WPV case reporting trends, 2003-2010*

[Translation of Chart Key:]
PFA = AFP
PVS1 = WPV1
PVS2 = WPV2
Importation du = Importation of
Importation de la RDC = Imported from the DRC
Importation du Tchad = Imported from Chad

Measles surveillance

Prior to 2005, measles was spread in an endemic manner. The incidence of measles dropped sharply after catch-up campaigns were conducted in 2005 and 2006, and a follow-up campaign in 2008.

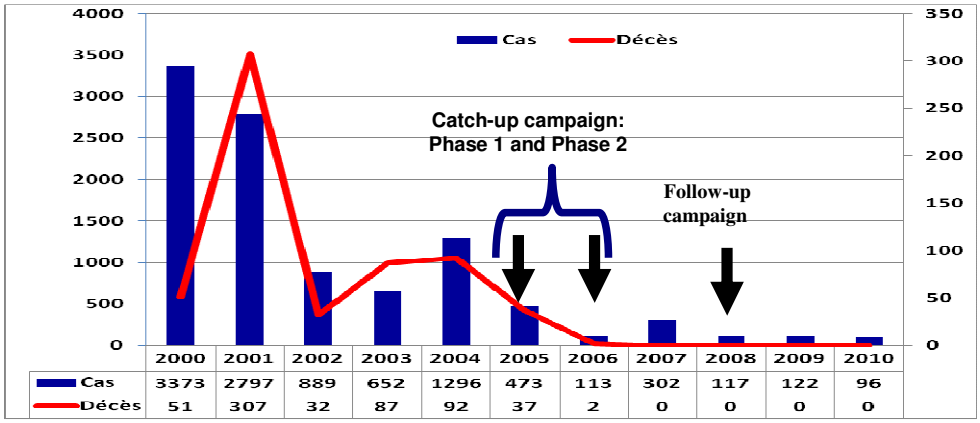


Figure 4: **Number of measles cases and deaths from 2000 to 2010**

[Translation of Chart Key:] Cas = Cases; Décès = Deaths

Table 4: Measles surveillance performance indicators by health region, 2006-2010

Year	No. of cases reported	No. of cases with blood specimen	% IgM +		Annualized investigation rate of ≥ 2.0/100 000		% districts with ≥ 1 case with blood specimen ≥ 80%
			No.	%	Annualized per 100 000	Non-measles	
2006	113	88	4	5	2.13	2003	88%
2007	302	302	10	3	7.16	6.92	96%
2008	117	117	12	10	2.72	2.44	13%
2009	122	122	11	10	2.21	1.96	75%
2010	95	95	3	2	2.11	2.12	83%

Source: Department of Monitoring and Data Management/EPI Directorate

These indicators demonstrate that measles surveillance in CAR is efficient but needs to be maintained by reducing the number of silent districts/CSS divisions, as evidenced by the percentage of districts / CSS divisions that collected specimens from at least 1 suspected case of measles.

Yellow fever surveillance

Surveillance of yellow fever has experienced significant improvement in case reporting since 2006, which enabled the detection of outbreaks in 2008, 2009 and 2010.

It should be noted that an epidemiological risk assessment was conducted in the country in 2009 with the support of an international team (CDC, WHO, the Pasteur Institute of Dakar, etc.), which confirmed that the country was truly at risk.

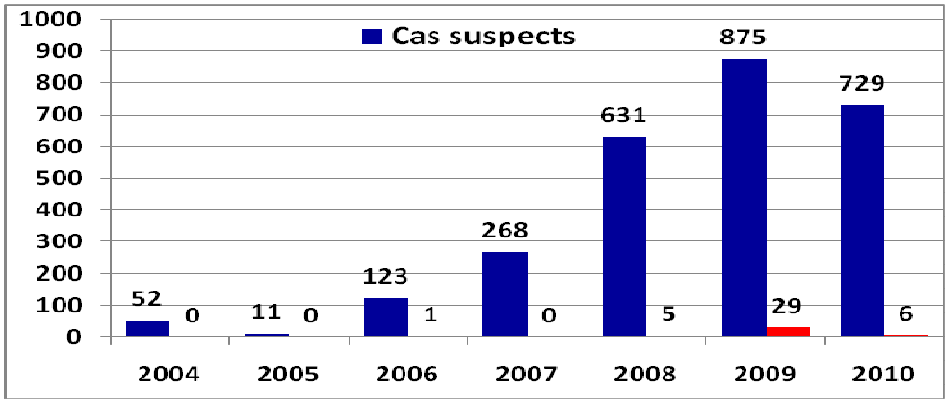


Figure 5*: Reporting of suspected YF cases from 2004 to 2010*

[Translation of Chart Key:]
Cas suspects = Suspected cases

Table XVI: Yellow fever surveillance performance indicators from 2005 to 2010

Year	% of suspected cases with blood specimen	% districts with ≥ 1 case with blood specimen	Annualized investigation rate for 100 000 inhabitants	No. of IgM + cases
2005	11	%	0.27	0
2006	123	77.8%	2.62	1
2007	282	95.8%	6.7	0
2008	631	95.8%	14.67	5
2009	875	100%	19.93	29
2010	728	96%	16.25	6

Maternal and neonatal tetanus (MNT) surveillance

As part of the implementation of the strategic plan for the elimination of this disease, MNT was strengthened in 2007. CAR organized three rounds of mass MNT campaigns in 2008.

A significant improvement can be seen in the case-based surveillance of MNT in recent years. However, underreporting remains a major failing of the surveillance system.

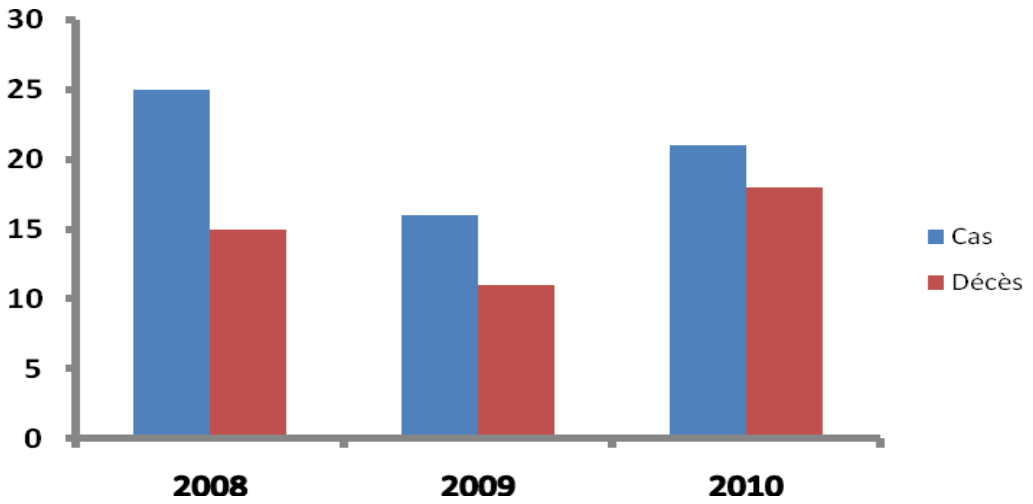


Figure 6: MNT cases and deaths reported from 2008 to 2010

[Translation of Chart Key:] Cas = Cases; Décès = Deaths

Adverse Effects Following Immunization (AEFI)

Even though it was initiated in 2008, the AEFI surveillance system is not yet operational as part of the routine EPI.

Nonetheless, surveillance is operational during the Supplementary Immunization Activities, even if there is an underreporting of cases.

This strong performance of target EPI disease surveillance is the result of a combination of the following favorable factors, as identified by the results of an external review conducted in November 2010:

- Existence of different operational coordinating committees: Interagency Coordinating Committee (ICC), Technical Advisory Committee to the EPI (TAC-EPI), National Certification Committee (NCC), and the National Polio Expert Committee (NPEC).
- Building the capacities of personnel through various training sessions: IDSR, EPIVAC and field epidemiology;
- Existence of terms of reference for focal points that include the target diseases of the EPI and IDSR;
- Existence of a WHO-accredited reference laboratory (polio, measles and yellow fever) in the country (Pasteur Institute of Bangui);
- Availability of specimen collection kits and case investigation forms at all levels;
- Implementation of a computer system for data management at the national and decentralized level;
- Availability of focal points for surveillance in every health region and prefecture;
- Distribution of standard operating procedure documents and data management tools at all levels;
- Existence of a ministerial decree pertaining to the creation of a multisectoral outbreak control committee at the national level;
- Funding for integrated disease surveillance activities;
- Expansion of surveillance activities in every health facility;
- Improvement of the completeness of surveillance reports;
- Existence of a surveillance support project (Project SURVAC);

Despite the strengths described above, certain weaknesses should be noted, which can be summarized as follows:

- Lack of an integrated epidemic preparation and response plan as well as a rapid intervention team at the national level;
- Sluggishness of the surveillance system in terms of investigation and response
- Limited distribution of the surveillance guide/Standard surveillance procedure document in most health facilities
- Insufficient/obsolete vehicle assets
- Insufficient worker training at the surveillance sites
- Inadequate analysis and use of data at the local level
- Insufficient supervision at all levels
- Non-operational surveillance for hepatitis B, Hib infections, pneumococcal infections, rotavirus-induced diarrhea and AEFIs
- Insufficient use of new technologies for the transmission of data
- Low levels of timeliness and completeness of routine system reports
- Weak enforcement of IHR provisions

External review of epidemiologic surveillance

To ensure that the active surveillance system for acute flaccid paralysis (AFP) is sufficiently operational and adequately sensitive to detect any possible case of circulating poliovirus in time and to serve as a foundation for the active surveillance of other EPI target diseases; an external review of follow-up epidemiological surveillance was conducted in November 2010 following the review of November 2006. The following recommendations were made:

- **At the national level**:
  - ✓ **Capacity building:**
    - Distribute standard operating procedures for surveillance to health facilities.
    - Train all new regional or prefectural focal points and health facility surveillance coordinators in IDSR and case-based surveillance of target EPI diseases.
    - Organize each year a refresher session for personnel involved in surveillance
    - Strengthen the supervision of the national level towards the health regions and of the health regions towards the health prefectures
    - Train the coordinators of EPI centres on basic cold chain equipment maintenance
  - ✓ **Coordination/Monitoring/Evaluation**
    - Strengthen coordination between the EPI Directorate and the surveillance unit (planning, information sharing, activity monitoring, etc.)
    - Conduct an annual internal peer review of the EPI target disease and IDSR surveillance
    - Enhance the NCC and IEP members' role in advocacy and awareness raising for the population
    - Establish a subcommittee for the containment of WPV to the laboratory in January 2011
    - Develop effective mechanisms for mobilizing local resources for disease surveillance
    - Provide regular written feedback at the regional and prefectural level
  - ✓ **Activity support:**
    - Draft a plan for vehicle and communications equipment maintenance in the field by December 2010.
    - Rehabilitate the motorcycles of the regional and prefectural focal points
    - Submit proposals to partners for funding of activities within the established deadlines
    - Increase the radio room's hours of operation for the collection of surveillance data
- **At the regional and prefectural levels:**
  - ✓ **Capacity building**
    - Position tools (notebook, registry or forms) that would facilitate a summary of the primary observations and activities to be implemented following site visits
    - Use written instructions for standards and procedures pertaining to site visits and specimen collections techniques
    - Make health facilities accountable for collecting specimens for cases of EPI target diseases (AFP, measles, yellow fever)
  - ✓ **Coordination/Monitoring & Evaluation:**
    - Carry out the various required tasks on each visit to actively search for AFP cases (registry review, verification of specimen collection kits, case validation, raising awareness among staff and the local population, etc.)
    - Increase supervision of surveillance coordinators by systematically applying the current supervisory checklist
    - Establish monitoring of timeliness and completeness and present resulting data in the form of tables and charts to illustrate trends
    - Provide regular written feedback at the regional and prefectural level
  - ✓ **Activity support:**

    Involve NGOs and other local partners in the entire surveillance process, from planning to implementation and monitoring and evaluation
  - ➢ **Support for partners**
    - Strengthen the partnership for improved coordination of surveillance activities

- Maintain technical, material and financial support for surveillance activities
- Help the country to mobilize even more resources for disease surveillance

In conclusion

- The AFP surveillance system remains operations and sufficiently sensitive to detect circulating WPV in a timely manner; nonetheless, the system gains should be maintained and consolidated. Efforts should be made to improve performance monitoring.
- Case-based surveillance of measles, yellow fever and MNT is also operational. Nevertheless, the use of disease reporting procedures needs improvement.
- The implementation of Integrated Disease Surveillance and Response is effective. However, training of health personnel does not sufficiently cover the level of health facilities.

2.3. Logistics

I. Cold chain

a. Cold chain capacity and distribution

The EPI Directorate has 4 cold rooms that were installed in 2005, 2 of which feature positive storage (30 x 2 m^3) and the other 2 of which feature negative storage (20 x 2 m^3).

All of these cold rooms are compliant with WHO and UNICEF standards. Their available capacity is adequate for the storage of routine vaccines: BCG, OPV, MCV, YFV, DTP-Hep B+Hib, TT, and PCV-13. Their available capacity will also cover the needs for the introduction of the rotavirus vaccine in 2013. However, there are plans for replacement of the obsolete cold rooms over the course of this cMYP.

[Chart title: National warehouse storage capacity situation (positive cold storage)]

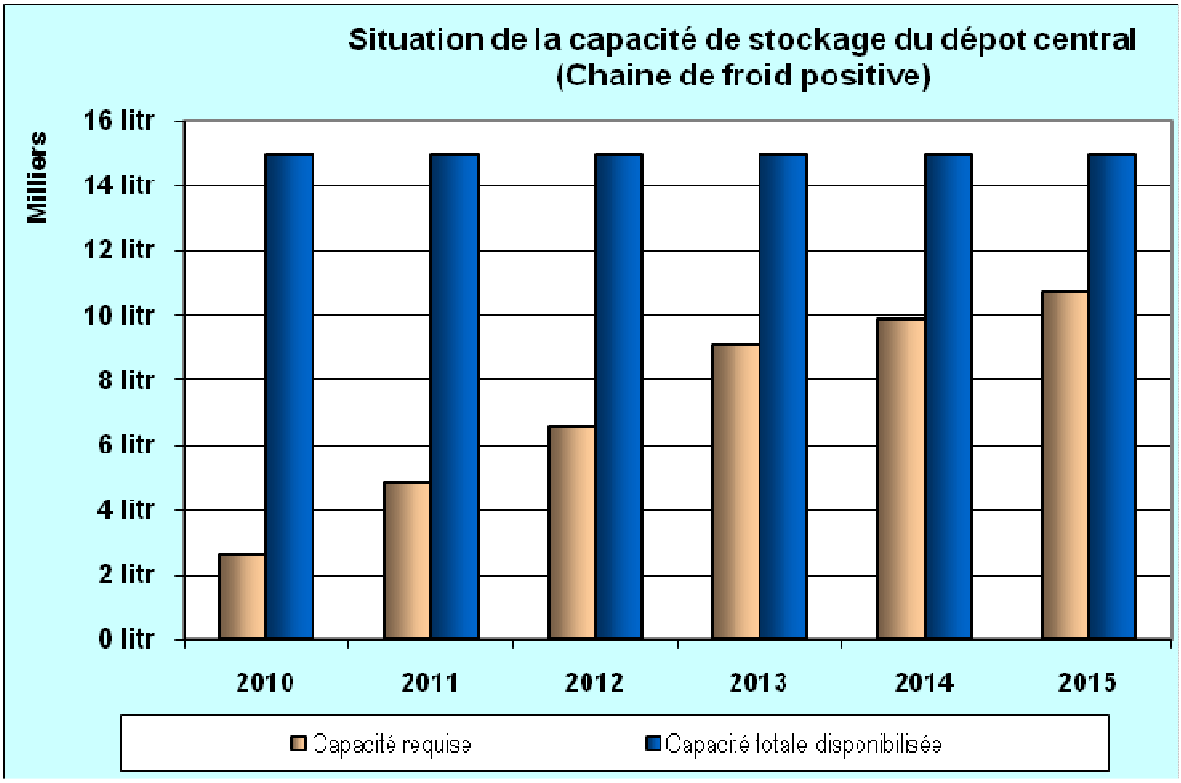


Figure 7*: Capacity of the cold chain in the central warehouse and vaccine volume*

[Translation of Chart Key:] Capacité requise = Required capacity; Capacité totale disponibilisée = Total available capacity
Milliers = In Thousands

At the intermediate level, all the districts are equipped with refrigerators and freezers for the storage of vaccines. The available capacity covers current needs, even in the face of supply drops every quarter to every two months. With the introduction of the rotavirus vaccine starting in 2013, 14 out of 24 districts will need additional cold chain capacity. The needs range from 1 to 5 Sibir V170 KE refrigerators. By 2015, all of the additional requirements of all the district warehouses are estimated at 35 refrigerators (Sibir V170 KE).
The status of the district warehouse storage capacity requirements is summarized in the figure below:

[Chart title: District warehouse storage capacity situation (positive cold storage)]

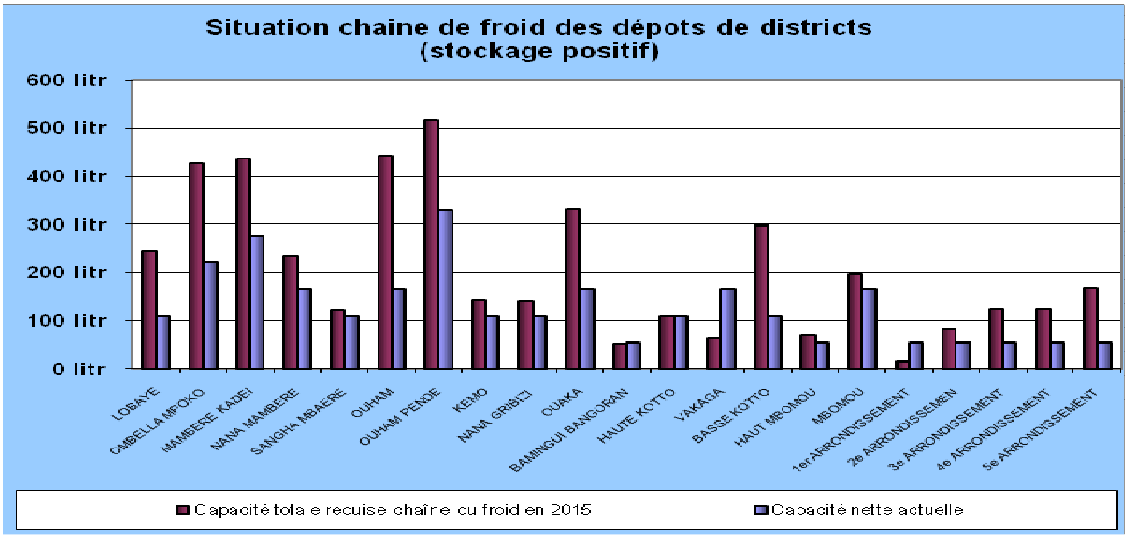


Figure 8*: Cold chain capacities in district warehouses*

[Translation of Chart Key:]
Capacité totale requise chaîne du froid en 2015 = Total required cold chain capacity in 2015
Capacité nette actuelle = Current net capacity

The inventory of cold chain equipment undertaken in 2010 with the support of a UNICEF consultant will be finalized in 2011. Nonetheless, the updated cold chain inventory shows that 256 pieces of equipment that are 10 years old or older should be replaced in the next five years (2011 to 2015), according to standards.

The refrigerators and freezers deployed at the health prefecture level often do not work due for the following reasons:

- The age of the cold chain equipment.
- The frequent lack of kerosene and other cold chain supplies (wicks, glasses and burners)
- Limited financial resources of the management committees (COGES) to undertake the purchase of kerosene and other cold chain supplies
- The low geographic coverage in the prefectures of service stations to provide fuel.

b) Equipment maintenance

The EPI programme does not have a national plan or qualified maintenance technicians at the decentralized level for cold chain maintenance. However, as part of preventative maintenance, supervisors, focal points for surveillance, and trained EPI coordinators become involved when required.

c) New information and telecommunication technologies

In the area of new information and communications technologies (ICT), the EPI programme does not have the appropriate equipment to ensure the data transmission and adequate and continuous communication with other facilities:

- The landline telephone is not operational.
- The Internet connection is inadequate at the national level and almost inexistent at the regional and prefectural levels.
- There is no mobile telephone service within the directorates.
- Radio transmitters/receivers are insufficient and obsolete at the level of health regions and prefectures.

d) Transportation

With respect to means of transportation, the EPI has been given vehicles, motorcycles and bicycles thanks to the support of various partners (WHO, UNICEF, GAVI and EU) since 2005.

However, this poses problems for maintenance of these vehicles at all levels (national, regional, prefectural) of the health system.

The distribution of vehicle assets by level in 2010 is shown in Table XVII below.

Table XVII: distribution of vehicle assets by level in 2010

Types of vehicles by level	Existing		
	Previous no. Total	New in 2010	Total 2010
National	**No.**	**No.**	**No.**
4x4 vehicles	2	0	2
Trucks	2	0	2
Bicycles	4	0	4
Motorcycles	8	0	8
Regional			
4x4 vehicles	7	2	9
Motorcycles	14	**0**	14
Prefectural			
4x4 vehicles	11	0	11
Outboard motors	5	0	5
Bicycles	20	0	20
Motorcycles	32	1	33
Health Facility			
Bicycles	95	325	420
Motorcycles	82	0	82

2.4. Vaccine Procurement and Quality

The vaccine and supply procurement system is working in a satisfactory manner thanks to the support of our partners. The frequency of vaccine procurements is twice per year at the national level. The distribution of vaccines and supplies from the national level to the health prefectures happens once each quarter.

Table XVIII: Vaccines received over the course of 2008 to 2010

Type of Vaccine	2008	2009	2010	Supply source
BCG	161 520	92 000	253 600	UNICEF
Pentavalent	448 300	491 800	257 800	UNICEF
OPV	255 000	300 000	318 000	UNICEF
MCV	105 000	79 000	180 000	UNICEF
YFV	151 600	242 800	73 800	UNICEF
TT	200 000		330 000	UNICEF

Vaccine management has been computerized at the national level since 2005 (CAR RSI (*Registre_Stock_Intégral*) registry files and DVD-MT), but has not yet been implemented elsewhere.

At the health prefecture level, data management is performed primarily using paper instruments. EPI management tools are regularly revised to accommodate new vaccines.

a) Vaccine wastage monitoring

Monitoring of vaccine wastage at the EPI level is not yet satisfactory; the ratio by prefecture is incomplete and the vaccine wastage data are of poor quality.

b) Injection Safety

Thanks to the support of GAVI and UNICEF, the programme has implemented an injection safety policy across the entire country. As part of this injection safety, the GAVI/ISS project made injection safety supplies available to CAR for the period from 2008 to 2010. These supplies were provided to all the health facilities practicing EPI.

Table XIX: Injection safety supplies received during the period of 2008 to 2010

Type of injection safety supplies	2008	2009	2010	Supply source
AD (auto-disable) syringes for BCG (0.05 mL):	401 500	0	253 600	UNICEF
AD (auto-disable) syringes (0.5 mL) for DTP, TT, MCV and YFV	200 561	407 200	526 000	GAVI
AD (auto-disable) syringes (0.5 mL) for DTP, TT, MCV and YFV (campaign)			489 600	UNICEF
Dilution syringes for BCG (2 mL)		339 200	127 500	GAVI
Dilution syringes for MCV and YFV (5 mL)		10 000		GAVI
Dilution syringes for MCV and YFV (5 mL) (mass measles campaign)			709 000	UNICEF
Safety Boxes		20 075	2 850	GAVI

However, since GAVI support for injection safety is being discontinued, it will be problematic to regularly supply injection safety supplies to immunization centres in the absence of a sustainable funding mechanism.

c) Waste management

With respect to the management of biomedical waste, the strategy used by the majority of immunization centres in the absence of incinerators is to burn and bury the waste. Nonetheless, a hospital waste management plan is being validated that will be able to provide true safety. It should be noted that De Monfort incinerators have been built in certain health prefectures thanks to NGO support (Health Regions 2, 3 and 4).

2.5. Communication

Communication links are one of the essential components of the RED strategy. It has been observed that the community is only slightly involved in the activities of the routine EPI at all levels.

Furthermore, to enhance the operational strategies and mobilize more families and communities to promote health, and particularly to promote the EPI, an IEC department was established within the Directorate of Health Communications by Decree No. 05/121 of 6 June 2005 regarding the structure and function of the Ministry of Public Health and Population.

However, it is clear that communications weaknesses remain. Communities and families are insufficiently informed about the importance of immunizations. Accordingly, we are seeing inadequate immunization coverage and high dropout rates for multiple-dose vaccines. This situation can be explained by:

- Inadequate technical, management and material capabilities in the area of behaviour change communications at all levels.
- The low level of involvement among opinion leaders, politicians and communities.
- The low level of involvement in the routine EPI among the mass media (public and private).
- Insufficient amount of concrete actions taken by political and administrative officials and private company managers to promote the routine EPI.
- No DMT coordination of routine EPI communication activities.
- Primary health care bodies non-operational at the decentralized level.
- Lack of recognition of communication considerations in district level planning.
- Insufficient number of personnel trained in communications within the Health Communications Directorate (DCS) and at the district level.

Communications guidelines for health promotion and an integrated communications plan were developed for the EPI in 2007. Unfortunately, this plan has not been operational.

To relieve these insufficiencies, and as part of the relaunching of the routine EPI, a strategic communication plan was developed in 2010 to correct these insufficiencies, and a training the trainers session on communications techniques in Essentials of Family Practice was held in 2010.

2.6. EPI Funding

EPI funding is provided by Central African Republic Government, WHO, UNICEF and GAVI, respectively. As part of the implementation of the DSRP, the Government has planned to allocate 15% of the HIPC resources to health in accordance with the recommendations from the meeting of WHO member country heads of state held in Abuja in 2003.

From 2008 to 2010, 9.7 billion FCFA were spent on the Expanded Programme on Immunization out of a programme total of 16.1 billion FCFA, or 60.14% of projections for the period. This poor rate of implementation and slow growth of the EPI's budget can be partially explained by the fact that a portion of the GAVI funding for Immunization Services Support (ISS) in 2009 and 2010 were frozen, and by the non-payment of funds promised by the public treasury.

Furthermore, it should be noted that the budget amount awarded to the EPI has not changed significantly between 2008 and 2010, going from 3 371 798 767 FCFA to 3 403 541 283 FCFA in 2010, representing a slight growth of 0.94%. This slight progression can be explained primarily by the implementation of mass immunization campaigns (polio, yellow fever, measles and MNT), whereas routine immunization activities have remained under-financed in light of the global financial crisis.

Funding from the community represents a small portion of overall funding. It is much more directed towards the payment of local staff salaries in the EPI centres and health districts, as well as the purchase of kerosene for the refrigerators. However, the Directorate of the EPI does not have any exact data on financial contributions from the community.

Table XX: EPI funding trends from 2008 to 2010

Year	Programme 2008-2010 cMYP and 2010 State Budget in FCFA [1]	2008 to 2010 Expenditures in FCFA [2]	Rate of expenditure as a % [3]=[2]/[1]
2008	5 907 591 659	3 371 798 767	57.08
2009	5 265 566 528	2 898 897 739	55.05
2010	4 912 030 431	3 403 541 283	69.29
TOTAL	**16 085 188 618**	**9 674 237 789**	**60.14**

***Source:** 2008-2010 cMYP, 2010 State Budget and Directorate of EPI*

Table XXI: Funding source and rate of implementation of funds allocated to the EPI from 2008 to 2010

Type of donor	2008-2010 cMYP programme planning and State Budget [1]	2008-2010 expenditures [2]	Rate of expenditure as a % [3]=[2]/[1]
State	6 220 354 353	1 693 002 201	27.22
WHO	1 398 672 328	2 801 885 035	200.32
UNICEF	3 698 163 520	2 580 349 553	69.77
GAVI	4 767 998 418	2 599 001 000	54.51
TOTAL	16 085 188 618	9 674 237 789	60.14

***Source:** 2008-2010 cMYP, 2010 State Budget and Directorate of EPI*

From 2008 to 2010, expenditure of EPI funds by donor is as follows: State 27.22%; World Health Organization 200.32%; UNICEF 69.77%; and GAVI 54.51% of their respective projections.

The expenditures of the Central African Government were primarily devoted to payment of the salaries of national EPI personnel, to supervisory compensation, the purchase of goods and services for department operations, rehabilitation of buildings and providing them with office furniture, as well as contributions to the purchase of new vaccines as part of the co-financing policy. However, it should be noted that it was not possible to evaluate and include the building depreciation costs in the public expenditures.

It should be noted that, in addition to the usual partners, certain others contributed to the purchase of equipment that play a role in the achievement of the activities of the Expanded Programme on Immunization, which was not planned in the 2008-2012 cMYP.

These include:

- GAVI HSS, which purchased 9 4x4 vehicles in 2009 in the total amount of 225 000 000 FCFA;
- The 9th EDF, which paid for 2 4x4 vehicles in 2010 in the total amount of 50 000 000 FCFA;
- WHO, which purchased 23 electric generators in 2010 in the total amount of 34.500.000 FCFA; and 25 office computers in the total amount of 45.000.000 FCFA as part of its EHA programme.

In the conflict zones, the humanitarian agencies (MSF, COOPI, religious NGOs, etc.) play a role in EPI activities, but data regarding their financial contributions are not available.

With respect to community funding, partial recovery of health costs should contribute to the purchase of kerosene and other supplies to operate the cold chain and cover operational costs of the outreach strategy; however, the COGES have encountered enormous difficulties in collecting these fees.

Accordingly, it can be observed that funding the EPI is still dependent upon external aid. The insufficiencies identified are:

- . Lack of control over the budget execution process and the awarding of public contracts by managers and appropriations administrators.
- Delayed development of employment programmes and provisional plans for awarding contracts;
- The reticence of providers to collaborate with the State due to accumulation of unpaid invoices;
- The lack of consistency between the amounts projected in the cMYP and the amounts contained in the budget;
- Non-payment of financial commitments by the public treasury;
- The delay encountered in payment of the share of the Central African State due to cash flow issues;

The immunization system is therefore still faced with insufficient financial resources, and with the difficulty of making the funding sustainable in the event that partner interventions are discontinued.

It is necessary to ensure the effective mobilization of financial resources to ensure that funding for the EPI in Central African Republic is sustainable.

- **Policy of co-financing the introduction of new vaccines**

This co-financing policy was initiated in 2008 with the introduction of new (pentavalent) and under-used (YFV) vaccines.
Despite the creation of a budget line entitled "purchase of vaccines and supplies" in the State Budget (115.000 US$ planned in 2008 and 2009), the country has only partially honored these commitments, since only 80 000 dollars have been spent out of a total amount of approximately 200 000 US$ for the 2009-2010 fiscal year.
Corrective actions have been planned for the next cycle, such as:
- The pursuit of advocacy at higher levels with the support of representatives of the WHO and UNICEF;
- The creation of a budget line for the Expanded Programme on Immunization and tracking of expenditures at the level of the Ministry of Finance and Budget;
- To lobby administrators and managers of the MSPPLS to consider the EPI's projections for submission to the adjudication committee.

Table XXX: Co-financing of New Vaccines, 2008-2010 (see GAVI Letter in US$)

Year	Type of Vaccine	GAVI contribution	Government contribution	Amount distributed by government	Funding gap
2008	YFV+Penta	534 750 000	27 000 000	20 000 000	7 000 000
2009	YFV+Penta	917 000 000	44 000 000	40 000 000	4 000 000
2010	YFV+Penta	649 440 000	37 440 000	0	37 440 000
TOTAL		**2 101 190 000**	**108 440 000**	**60 000 000**	**48 440 000**

2.7. Management

With respect to the management of the EPI, the existence of the Interagency Coordinating Committee (ICC) for the EPI, the Technical Advisory Committee for the EPI and the existence of an EPI team at all levels of the health pyramid are all great assets for programme management.

As part of programme planning, a strategic plan (the 2008-2012 Comprehensive Multi-Year Plan) has been developed, and sectoral plans (measles control plan, MNT elimination plan, polio outbreak preparation and response plan, yellow fever preparation and response plan, national injection safety plan) have been developed at the national level along with various immunization microplans at the district level. These reference documents have been used as a basis for the implementation, monitoring and evaluation of immunization activities at various levels.

2.8. Capacity building

In the area of programme capacity building, a certain number of trainings have been organized for national, regional and prefectural management teams: regional and national MLM, EPIVAC, SURVAC, computerized data management and DQS tools.

However, the capacities of workers in health facilities remain inadequate.

The weaknesses uncovered in the area of management and capacity development are:

- Mobility/turnover of health personnel at the operational level;
- Insufficient integration of community health workers into civil service;
- Absence of an annual internal programme evaluation;
- Lack of incentives for EPI workers;
- Inadequate implementation of programme management guidelines.
- National Regulatory Authorities for medicines and vaccines do not function effectively alongside the EPI (vaccine procurement).

2.9. New vaccines, new technologies and under-used vaccines

2.8.1 Experience of CAR in the introduction of new and under-used vaccines

The EPI for CAR has extensive previous experience in the introduction of new and under-used vaccines. Indeed, immunization for yellow fever has been performed since the creation of the major endemic disease units in 1954. During this period, immunization was performed in the form of mass campaigns for the mobile strategy, with a well-defined timeline. It should be recalled that the 17D yellow fever vaccine (Pasteur Institute of Dakar) used to be administered by scarification.

With the development and adoption of the Operational Plan for Accelerated Development of the Expanded Programme on Immunization (PODAPEV) in CAR in 1986, the yellow fever vaccine is administered as an injection to the upper right arm to children starting at 12 months of age. For the past few years, it has been given to children starting at 9 months of age, like the measles-containing vaccine.

Since 2008, CAR has introduced vaccines for viral Hepatitis B and *Haemophilus influenzae* type B into the routine EPI. The post-introduction evaluation conducted in August 2009 led to the formulation of the following recommendations:

A. For health facilities:

- Implement a system to recuperate those lost to follow-up in the health facilities;
- Organize daily immunizations in those health facilities with a refrigerator (rural or urban setting);
- Re-establish outreach strategy immunizations;

B. For directors and heads of health prefectures:

- Organize internal quarterly reviews of the routine EPI within each prefecture;
- Integrate focal points for AFP surveillance and routine EPI activities into your terms of reference;

- Formally include the routine EPI in the agenda of the quarterly regional meetings to coordinate AFP surveillance;
- Ensure monthly monitoring of EPI data for implementing activities;
- Organize supportive supervision visits to health facilities.

C. For the EPI directorate:
- Equip the health facilities of Bangui with equipment and fuel to make up for electric outages;
- Provide health facilities with immunization cards;
- Develop clear guidelines to safely eliminate EPI immunization waste;
- Develop a plan to strengthen the health management capabilities of health personnel;
- Establish pediatric surveillance of bacterial meningitis caused by Hib as well as surveillance to monitor AEFIs;
- Integrate the new vaccines into the ICP and effectively implement it.

D. For the MSPPLS and partners:
- Ensure effective funding for supportive supervision plans;
- Support the implementation of the outreach strategy as part of the RED approach;

This acquired experience will be used for the introduction of the pneumococcal vaccine in 2011 and the rotavirus vaccine in 2013.

2.8.2 Status of pneumococcal infections

a) **Globally**

Infections caused by pneumococcus represent a significant cause of morbidity and mortality throughout the globe. In 2005, the WHO estimated the number of deaths caused by this agent each year to be 1.6 million; this estimation includes the approximately 0.7 to 1 million deaths of children under five. Most of these deaths occur in poor countries; the deaths include a disproportionate share of children under the age of 2 years.

Pneumonia, accompanied by emphysema and/or bacteremia, febrile bacteremia and meningitis represent the most common forms of invasive pneumococcus. Pneumococci
are the most common causal agents for non-bacteremic pneumonia. In developing countries, non-bacterial pneumonia is at the root of most pneumococcus-induced deaths among children. Middle-ear infections, sinusitis and bronchitis represent the non-invasive and less severe forms of pneumococcal infection, but are much more common.

b) **In CAR**

The most recent study, conducted from October 2004 to September 2006 in the Bangui Pediatric Medical Complex on 167 children under the age of 5 years, provided evidence for the predominance of the *S. pneumoniae* bacterium as the most common pathogen responsible for acute bacterial meningitis (47%) followed by *H. influenzae* (27%),

Title: Acute bacterial meningitis at the “Complexe Pediatrique” of Bangui-CAR, Journal of Pediatrics 2007 Pp. 1-4 (R. Bercion, G Bobossi et coll.).

2.9.5 Status of rotavirus infections

a) Globally

Throughout the world, rotavirus is the most common cause of severe diarrheal diseases among newborns and small children. Estimates hold that in 2004, rotavirus infections resulted in some 527 000 deaths (475 000-580 000), primarily in developing countries. Although there are a large number of viral strains, most

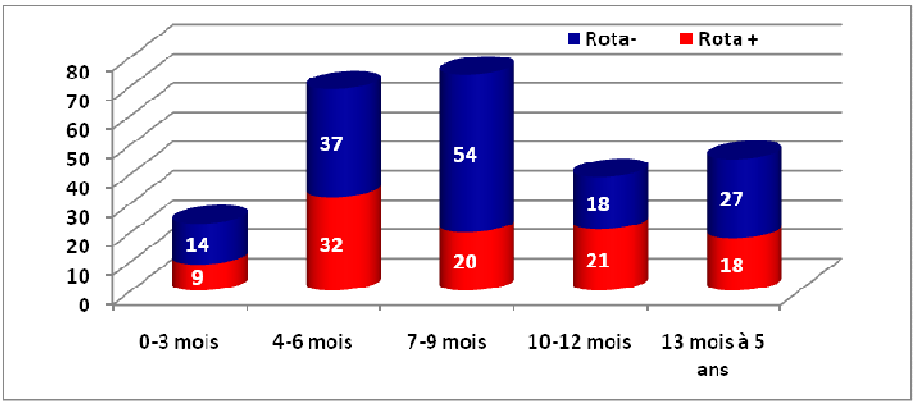
human rotaviruses are due to 5 serotypes. Transmitted primarily through the oral-fecal route, rotaviruses affect a large majority of children throughout the world before the age of 3 years, and those from most developing countries before their first birthday. In 1999, a very effective rotavirus vaccine, RotaShield™, approved for use in the United States, was withdrawn from the market after less than a year of use, due to its association with cases of intestinal invagination. Two new attenuated live oral rotavirus vaccines were approved in 2006: the monovalent human rotavirus vaccine (Rotarix™) and the human-bovine reassortant rotavirus vaccine (RotaTeq™). Large-scale clinical trials, conducted in industrialized Western countries and in Latin America, demonstrated that these 2 vaccines have very good safety and efficacy profiles. Since 2009, WHO recommends all countries to include these two rotavirus vaccines in their systematic routine immunization programme. The current rotavirus vaccines are judged to be equally safe and effective, but their antigenic properties and dosing schedules are different. In general, they confer protection of about 90 to 100% against severe rotavirus strains and about 74 to 85% protection against all diarrhea-causing rotaviruses, depending on the immunization schedule and population evaluated. It has been proven that the protection conferred against severe rotaviruses persists into the second year monitored for both of these vaccines.

b) In CAR

The preliminary results of a study conducted at Pasteur Institute of Bangui from February to September 2008, involving 250 specimens collected from children ages 0 to 5 years (159 boys and 91 girls, gender ratio of 1.7) seen in the Pediatric Complex of the National Medical Centre and University of Bangui (CPB) for acute diarrhea reveal that: 100 were positive for rotavirus (40%) using the VIKIA Rota-Adeno agglutination of test particles assay (BioMérieux). Over the course of the evaluation, 4/250 children (1.6%) died.

The following chart shows the results obtained by age group:

Figure 9*: Results of the VIKIA Rota-Adeno test by age group.*



[Translation of Chart Key:] mois = months; à 5 ans = to 5 years

The age group most affected by acute diarrhea were children 5 to 9 months of age, representing 143/250 (60%) of the specimens collected. Out of the 143 children belonging to this age group, 52 (36%) had a positive agglutination test for rotavirus.

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2.9.5 Status of meningococcal infections

a) Globally

- **Role of meningococcal meningitis among different types of bacterial meningitis**

Outside of epidemics, estimates are that at least 1.2 million cases of bacterial meningitis occur each year across the globe, of which 135 000 end in death. About 500 000 cases and 50 000 deaths are due to meningococcus. In a non-epidemic situation, meningococcus in the cause of 10 to 40% of the cases of purulent meningitis.

Endemic meningococcal meningitis: In most countries around the world, the incidence of endemic meningococcal meningitis is around 1 to 5 cases per 100 000 inhabitants each year. In the arid regions of sub-Saharan Africa, the incidence of the disease between epidemics has a wide range but can exceed 20 cases per 100 000 inhabitants. In fact, outside of epidemics, the annual incidence can vary significantly from year to year in the same country.

- **Review of epidemics observed since the 1970s**

The word **epidemic**, when used in the context of meningococcal infections, can be applied to various situations across the globe.

Although the most severe epidemics mostly strike those African countries located south of the Sahara, in the meningitis belt of Africa, epidemic meningitis has become a global problem, capable of affecting any country, regardless of its climate.

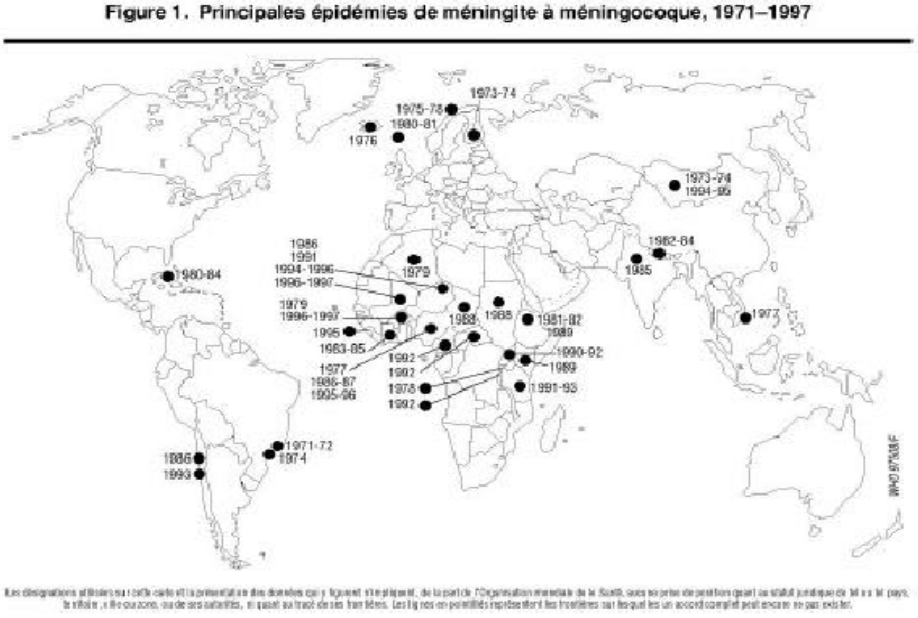


Figure 10: **Principal meningococcal meningitis epidemics across the globe**

b) In CAR

Six districts in the north of CAR, namely: Ouham, Ouham Pendé, Nana Mambéré, Bamingui Bangoran, Nana Grébizi, Haute Kotto and Vakaga, are all located in the African meningitis belt.

The most recent outbreak of epidemic meningitis in CAR was on 30 December 2007 to 30 April 2008. During this meningococcal meningitis epidemic, 246 cases and 70 deaths were recorded from W1 to W18, resulting in a cumulative case fatality rate of 28.5%.

The figure below illustrates the case fatality rate due to meningitis in the affected districts

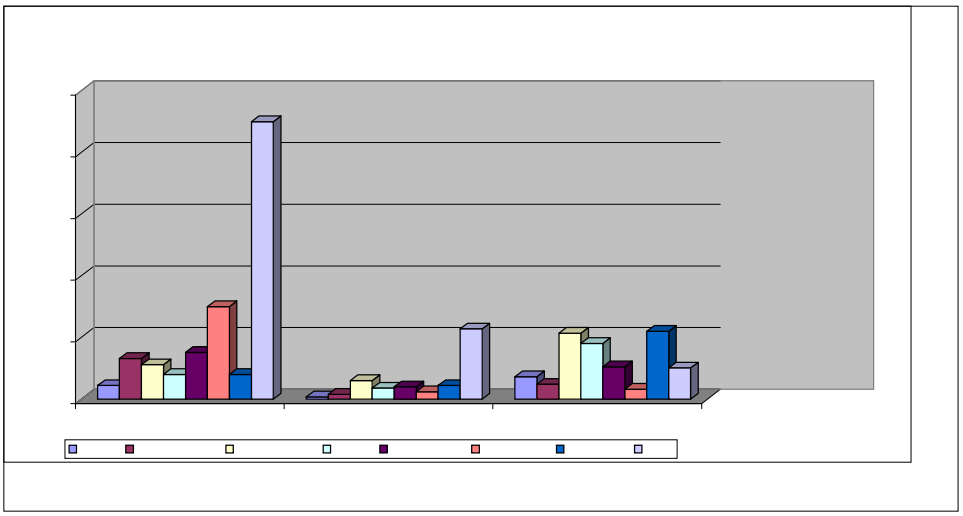


Figure **11: Meningitis case fatality rate in several affected districts in CAR**

Note that the health district of Lobaye, which is not part of the meningitis belt, was equally affected during the first quarter of 2008.

2.10. Summary of the CAR immunization system's strengths, weaknesses, opportunities and threats

STRENGTHS	WEAKNESSES
1. PROGRAMME MANAGEMENT	
• Organizing SIAs (NIDs, LIDs, response) • Existence of a functioning Interagency Coordinating Committee (ICC) for the EPI • Existence of a Technical Advisory Committee to the EPI • Enhanced team human resources for the Directorate of the EPI • Existence of an EPI team at the regional and district levels • Existence of a cMYP • Good collaboration among the Ministry of Public Health and Population, the Ministry of Finance and Budget, the Ministry of the Economy, Planning and International Cooperation and the development partners (WHO and UNICEF)	• Poor distribution of existing personnel • Health personnel turnover • Inadequate EPI worker technical capabilities in planning, management, and activity monitoring and evaluation at all levels • Non implementation of various existing policy documents, norms and standards (increasing capacities to include them in each management chapter) • Low levels of completeness and timeliness for routine data • Poor local analysis and use of data • National Regulatory Authorities for medicines and vaccines do not function effectively alongside the EPI (vaccine procurement).
2. PROVISION OF SERVICES	
• Existence of an immunization schedule • Availability of resources for the outreach strategy • Mobilization of catalytic funds for supervision • Mobilization of resources • Holding micro-planning workshops • Training regional and district coordinators in EPI management (national-level MLM training, EPIVAC, SURVAC, etc.) • Supervision and evaluation mission • Training EPI workers in computerized data management • Training EPI coordinators in the use of quality control tools for DQS data • Revision of data management tools to take into account the introduction of the pentavalent vaccine • Catch-up for non-immunized children • Boost immunization coverage • Supervision and outside evaluation conducted during IIAs	• No understanding of the target population covered by the strategy • Insufficient resources for monthly field missions • Insufficient/obsolete vehicle assets • Inadequate supportive supervision • Insufficient number of monitoring meetings held in district bases • No monitoring meetings held at the level of the EPI centres • Limited involvement of the community in microplanning workshops • Inadequate understanding among the community of the importance of immunizations and the immunization schedule • Lack of respect for daily immunization guidelines in urban areas • Lack of immunization hours convenient for a rural population • Inadequate initial training/refresher training for EPI workers • Imperceptible impact of capacity building progress (DQS, EPIVAC, SURVAC, etc.) Non-use of this tool at all levels • Non-digitization of data at the prefecture level • Poor data quality • Exhausted supply since 2010 of immunization registries and immunization cards • Low level of report completeness from the EPI centres to the prefecture level • Non-continuation of routine activities following SIAs • Consensus meetings not held on integrating other minimum package of services into the routine EPI • Regional and prefectural teams not coached by their direct supervisors following SIAs

STRENGTHS	WEAKNESSES
	• Lack of deadlines for the implementation of a search mechanism for those lost to follow-up • High dropout rate • Low levels of completeness and timeliness for routine data • Poor local analysis and use of data • Lack of motivation among community health workers due to the irregular payment of salaries and poor working conditions • Immunization sessions not held on a regular basis
3. INTEGRATED DISEASE SURVEILLANCE	
• Circulation of WPV interrupted since August 2009 • Existence of an efficient and decentralized surveillance system (AFP, measles, yellow fever and MNT) • Existence of an epidemic response plan • Training of prefectural personnel in computerized data management • Training of personnel in field epidemiology • Existence of a regional WHO reference laboratory in the country (Pasteur Institute of Bangui) • Existence of software package at the intermediate and peripheral levels • Existence of NCC and NPEC	• Non-systematic case response • Lack of indicator monitoring • Absence of epidemiological information bulletins for feedback • Absence of formal reporting on regional coordination meetings • Lack of timeliness in outbreak investigations • Insufficient local use of national surveillance data • Low levels of timeliness and completeness for routine system reports • Inadequate surveillance of AEFIs • Low levels of local use of data • Insufficient feedback to all levels • Obsolescence of vehicle assets at all levels • Insufficient data transmission channels Insufficient use of the software package at the intermediate and peripheral levels
4. LOGISTICS	
4.1. Cold chain	
• There are regular estimates of the needs of EPI centres for vaccines, injection safety supplies and cold chain accessories • The needs of problem EPI centres are identified and regularly provided with fuel • Existence of a new cold room with adequate vaccine storage capacity • Recent restoration of cold chain equipment thanks to support from UNICEF, WHO, ICRC and the EU, which enabled a high cold chain coverage to be achieved (95%) • Computerized vaccine management tool at the national level • Support of a UNICEF logistician in evaluating the cold chain	• Insufficient quantity of vaccines, injection safety supplies and cold chain accessories • Lack of a national maintenance policy • Lack of maintenance facilities/units in the seven (7) regional bases and twenty-four (24) districts • Lack of workers trained in the maintenance and appropriate use of cold chain equipment • Lack of initial/refresher training of drivers on the maintenance and appropriate use of vehicle assets • Sometimes, vaccine quantities, injection safety supplies and cold chain accessories are not completely taken into consideration due to a lack of funds • The removal of injection safety supplies from supplies shipped still poses difficulties • Poor management of vaccines, infection safety supplies at the peripheral level (no command of stock management) • Inability of the COGES in the health centres to take responsibility for the purchase of fuel • Lack an autonomous national system to supply fuel and cold chain accessories • Existence of multiple immunization centres with problems renewing their supplies of fuel and

STRENGTHS	WEAKNESSES
	cold chain accessories • Inadequate cold chain equipment maintenance
4.2. Biomedical waste management	
• Existence of a national focal point • Training of trainers in the management of biomedical waste • Existence of a document of standards and guidelines for the management of health activity-related waste management	• Lack of a national biomedical waste management policy • Lack of an adequate number of incinerators in the districts
4.3. Transportation and communications equipment	
• Improvement of the EPI automobile via GAVI's donation of 2 vehicles to the Directorate of the EPI, the 4 health prefectures (ISS and HSS) • Donation of 115 bicycles for EPI centres from the WHO • Donation of 39 electric generators from the WHO	• Obsolescence and insufficient number of radio handsets • Insufficient vehicle assets (4x4 vehicles, mopeds, bicycles) in most districts and immunization centres for the transportation of supplies, supervision, monitoring and immunization of remote populations
5. Vaccine procurement and quality	
• A plan for resupplying vaccines, injection safety supplies and cold chain accessories has been developed • Vaccine Management Assessment in 2008 • Vaccines, including under-used vaccines such as yellow fever, are supplied to the country on a regular basis by UNICEF and GAVI • Existence of a planning document to reduce vaccine wastage • Existence of an injection safety policy • Regular procurement of injection safety supplies for the country from 2008 to 2010, funded by GAVI through UNICEF • Availability of injection safety supplies in every immunization centre	• Lack of an autonomous national system to procure vaccines and injection safety supplies • Inadequate management of vaccines and injection safety supplies at the level of districts and immunization centres • No regular schedule for vaccine procurement at the intermediate and peripheral levels • Insufficient number of personnel trained in vaccine and injection management
6. Communication	
• IEC Department established within the Health Communication Directorate • Existence of a strategic EPI strengthening communication plan in December 2010 • Existence of trainers of Essentials of Family Practice communication techniques • Systematic monitoring of the implementation of social mobilization activities • Existence of the Health Communication Directorate within the MSPPPLS. • Partner support for the DCS for social mobilization activities • High level of involvement from leaders and community mobilizers in supplementary immunization activities • Effective involvement of public and private media outlets in social mobilization during SIAs	• Insufficient amount of concrete actions taken by political and administrative officials and private company managers to promote routine EPI • No DMT coordination of routine EPI communication activities • Lack of technical advisory bodies to the EPI at the decentralized level • Lack of communication plan at the district level • Inadequate number of qualified personnel in the field of communications at the district and DCS level • Lack of educational materials and outreach within the Directorate of Health Promotion • Inadequate technical, management and material capabilities in the area of behaviour change communications at all levels • The low level of involvement among opinion leaders, politicians and communities.

STRENGTHS	WEAKNESSES
	• The low level of involvement in the routine EPI among the mass media (public and private). • Insufficient involvement from leaders and community mobilizers in routine EPI activities • Poor communication capacities to promote the routine EPI • Lack of educational material • Lack of recent data (KAP survey) on the reasons why children are not immunized and why they do not participate in the routine EPI
7. Financial sustainability	
• Creation of a budget line item in the State budget entitled "Purchase of vaccines and supplies" (115 000 US$ allocated for 2008 and 2009; 241 666 US$ for 2010) • Presence of development partners, notably WHO, UNICEF, Rotary International and GAVI • Community funding initiative through the cost recovery system • Budget line item for the EPI created within the State appropriations	• Lack of control over the budget execution process and the awarding of public contracts by managers and appropriations administrators. • Lack of control over the budget execution process and the awarding of public contracts by managers and appropriations administrators. • Delayed development of employment programmes and provisional plans for awarding contracts; • The reticence of providers to collaborate with the State due to accumulation of unpaid invoices; • The lack of consistency between the amounts projected in the cMYP and the amounts contained in the budget; • Non-payment of financial commitments by the public treasury; • The delay encountered in payment of the share of the Central African State due to financial strains; • Inadequate financial resources to fund the EPI from 2008 to 2010 • GAVI funding suspended • Lack of a cMYP funding plan • No expansion of EPI centres as previously planned • No growth in technical capacities for EPI management at all levels • Inadequate coordination of EPI activities • Lack of funds to build incinerators for biomedical waste management
OPPORTUNITIES	**THREATS**
• Conclusion of the HIPC initiative • High level of population compliance with supplementary EPI activities • Renewed support from traditional EPI partners • Clear desire on the part of the country to support the programme Existence of a surveillance strengthening project in Central Africa (SURVAC)	• GAVI funding suspended • Lack of security in certain parts of the country • Global financial crisis • Poorly-maintained network of internal roads • Regular non-payment of the salaries of community health workers • Cash flow issues • Temporary public sector hiring freeze • Circulating WPV in the region

3. NATIONAL PRIORITIES

Upon analysis of the mid-term implementation of the 2008-2012 cMYP, the principal high-priority problems identified are summarized in the tables below.

Table XXII: Principal high-priority problems of the 2011-2015 cMYP

COMPONENT	HIGH-PRIORITY PROBLEMS
PROGRAMME MANAGEMENT	Poor technical capabilities of EPI management
	Poor quality of EPI data at all levels
PROVISION OF SERVICES	Large numbers of non-immunized children
	Persistently-elevated penta1–penta3 dropout rate (>10%)
	Lack of strategic understanding the target population in health facilities;
	Poor integration of the child survival interventions into the routine EPI
EPIDEMIOLOGICAL SURVEILLANCE	Sluggishness of the surveillance system with respect to investigation and response
	Inadequate surveillance of AEFI cases
	No feedback system and no local use of surveillance data
	Low levels of timeliness and completeness for routine system reports
	Weak enforcement of IHR provisions
	Inadequate supervision
LOGISTICS	Inadequate management of vaccines and supplies
	Frequent interruptions in cold chain operations due to the irregular procurement of fuel and other supplies
	Immunization waste elimination system does not conform with safety standards
	Insufficient vehicle assets for the programme and inadequate maintenance
	Unsuitable means of communication for the present environment
	Lack of quality personnel for maintenance in the health regions and prefectures
CAPACITY BUILDING	Inadequate human resources in terms of quantity and quality
FINANCIAL SUSTAINABILITY	Under-funding of the EPI
	Low use of resources

4. VISIONS, NATIONAL OBJECTIVES AND STAGES

4.1. 2011-2015 Comprehensive Multi-Year Plan (cMYP)

In accordance with the Global Immunization Vision and Strategy (GIVS) and with the Millennium Development Goals, all women and children, both vulnerable groups, will be immunized against the EPI target diseases with both traditional vaccines and new vaccines by 2015, regardless of their location and social status. They will receive the full range of integrated care for the prevention of disease (malaria, anemia and malnutrition) and promote their own health as part of a strengthened, highly-efficient health system, supported by the growing yet still efficient participation of the Government and community.

This vision is likewise inspired by the Strategic Framework for Poverty Reduction (SFPR), the health component of which appears in the 2006-2011 National Health Development Plan.

4.2. General Objective

To contribute to the reduction of morbidity and mortality due to vaccine-preventable diseases.

4.3. VISIONS, NATIONAL OBJECTIVES AND STAGES

Table XXIII: National objectives and stages of the 2011-2015 cMYP.

Immunization Coverage Objectives	Antigen	Stage				
		2011	2012	2013	2014	2015
To attain a 90% immunization coverage at the national level for every vaccine by 2015.	BCG	80%	85%	90%	92%	95%
	OPV3	70%	75%	80%	85%	90%
	DTP-HepB+Hib3	70%	75%	80%	85%	90%
	MCV	70%	75%	80%	85%	90%
	YFV	70%	75%	80%	85%	90%
	TT2+	60%	65%	70%	75%	80%
	PCV3	40%	75%	80%	85%	90%
	Rota			60%	65%	70%

Table XXIV: Global, regional and specific objectives and stages

Global and regional objectives	Specific Objectives	Stage				
1. **By 2015, achieve at least 90% immunization coverage for all vaccines at the national level and at least 80% at the district level.**	**By 2015, achieve at least 90% immunization coverage for all vaccines at the national level and at least 80% at the district level.**	**2011:** At least 85% of districts will have achieved an immunization coverage rate of 70% for every vaccine **2012:** At least 90% of districts will have achieved an immunization coverage rate of 75% for every vaccine **2013:** At least 90% of districts will have achieved an immunization coverage rate of 80% for every vaccine **2014:** 90% of districts will have achieved an immunization coverage rate of 85% for every vaccine **2015:** 90% of districts will have achieved an immunization coverage rate of 90% for every vaccine				
2. Reduce the DTP1–DTP3 and BCG–MCV dropout rates to below 10%	Reduce the DTP1/DTP3 and BCG/MCV dropout rates to below 10% by the close of 2015.	**2011:** DTP-HepB+Hib1 to DTP-HepB+Hib3 dropout rate of 15% **2012:** DTP-HepB+Hib1 to DTP-HepB+Hib3 dropout rate of < 10% **2013:** DTP-HepB+Hib1 to DTP-HepB+Hib3 dropout rate of < 10% **2014:** DTP-HepB+Hib1 to DTP-HepB+Hib3 dropout rate of < 10% **2015:** DTP-HepB+Hib1 to DTP-HepB+Hib3 dropout rate of < 10%				
3. Reduce wastage rates for all vaccines in accordance with recommended standards	By 2015, reduce the vaccine dropout rate according to the management standards	**2011**	**2012**	**2013**	**2014**	**2015**
	BCG: from 25% to 15%	25%	20%	15%	15%	15%
	DTP-HepB+Hib: from 10 % to 5% :	10%	10%	10%	10%	5%
	OPV: from 15% to 5%	15%	10%	5%	5%	5%
	MCV: from 20% to 15%	20%	15%	15%	15%	15%
	YFV: from 21% to 15%	20%	15%	15%	15%	15%
	TT: from 6% to 5%	6%	5%	5%	5%	5%
	PCV: from 5% to 3%	5%	5%	5%	5%	5%
	Rotavirus at 5%			5%	5%	5%
	Meningococcus at 10%					10%
4. Eradicate polio	Maintain the interruption of polio transmission until the disease is declared eradicated in 2015	**2011:** Isolate 0 cases of WPV **2012:** Isolate 0 cases of WPV **2013:** Isolate 0 cases of WPV **2014:** Isolate 0 cases of WPV **2015:** Isolate 0 cases of WPV				

Global and regional objectives	Specific Objectives	Stage
Eliminate MNT	Eliminate MNT by 2015	**2011:** Reach an MNT incidence of < 1 case per 1000 live births per year and per district **2012:** Maintain an MNT incidence of < 1 case per 1000 live births per year and per district **2013:** Maintain an MNT incidence of < 1 case per 1000 live births per year and per district **2014:** Maintain an MNT incidence of < 1 case per 1000 live births per year and per district **2015:** Maintain an MNT incidence of < 1 case per 1000 live births per year and per district
Pre-eliminate measles	Reduce measles-related mortality by 95% by 2015	**2011** Achieve an 80% reduction of the measles-related mortality rate **2012:** Achieve an 85% reduction of the measles-related mortality rate **2013:** Achieve an 90% reduction of the measles-related mortality rate **2014:** Achieve an 92% reduction of the measles-related mortality rate **2015:**: Achieve an 95% reduction of the measles-related mortality rate
Control yellow fever	Eliminate yellow fever by 2015	**2011:** Eliminate yellow fever **2012:** Eliminate yellow fever **2013:** Eliminate yellow fever **2014:** Eliminate yellow fever **2015:** Eliminate yellow fever
Accelerate the campaign against other infectious diseases such as Hib, hep B, pneumococcus, and rotavirus.	Prevent and control Hib infections	**2011** Achieve an 80% reduction of the Hib-related mortality rate **2012:** Achieve an 85% reduction of the Hib-related mortality rate **2013:** Achieve an 90% reduction of the Hib-related mortality rate **2014:** Achieve an 92% reduction of the Hib-related mortality rate **2015:** Achieve an 95% reduction of the Hib-related mortality rate
	Prevent and control hepatitis B infections	**2011** Achieve an 80% reduction of the hepatitis-related mortality rate **2012:** Achieve an 85% reduction of the hepatitis-related mortality rate **2013:** Achieve an 90% reduction of the hepatitis-related mortality rate **2014:** Achieve an 92% reduction of the hepatitis-related mortality rate **2015:** Achieve an 95% reduction of the hepatitis-related mortality rate
	Prevent and control pneumococcal infections	**2011** Achieve a 40% reduction of the pneumococcal mortality rate **2012:** Achieve a 60% reduction of the pneumococcal mortality rate **2013:** Achieve a 80% reduction of the pneumococcal mortality rate **2014:** Achieve a 90% reduction of the pneumococcal mortality rate **2015:** Achieve a 95% reduction of the pneumococcal mortality rate

Global and regional objectives	Specific Objectives	Stage
	Prevent and control rotavirus infections	**2011** N/A **2012:** N/A **2013:** N/A **2014:** Achieve a 80% reduction of the rotavirus-related mortality rate **2015:** Achieve a 95% reduction of the rotavirus-related mortality rate
By 2015, 90% of the health district will have access to EPI services offered by an adequate number of appropriately-trained personnel	Strengthen the technical and managerial capabilities of EPI personnel by 2015.	**2011:** Train 50% of EPI personnel in programme management **2012:** Train 60% of EPI personnel in programme management **2013:** Train 70% of EPI personnel in programme management **2014:** Train 80% of EPI personnel in programme management **2015:** Train 90% of EPI personnel in programme management
Ensure financial sustainability for immunizations	Increase the national funding for immunization by 15% per annum by 2015	**2011**: 100% of the budget allocations go to the EPI to fund vaccines, except for salaries already appropriated, in comparison to 2010 **2012:** 100% of the budget allocations go to the EPI to fund vaccines, except for salaries in 2012, and 15% of budget appropriations for the EPI, except for salaries, in comparison to 2011 **2013:** 100% of the budget allocations go to the EPI to fund vaccines, except for salaries in 2013, and 30% of budget appropriations for the EPI, except for salaries, in comparison to 2012 **2014:** 100% of the budget allocations go to the EPI to fund vaccines, except for salaries in 2014, and 45% of budget appropriations for the EPI, except for salaries, in comparison to 2013 **2015:** 100% of the budget allocations go to the EPI to fund vaccines, except for salaries in 2012, and 60% of budget appropriations for the EPI, except for salaries, in comparison to 2011 .

5. OBJECTIVE-BASED STRATEGIES AND ACTIVITIES BY COMPONENT

Table XXV: Strategies and activities of the 2011-2015 cMYP by component

Strategy	Primary activities
Implement the RED strategy	Organize microplanning for activities
	Ensure outreach strategy immunizations
	Revitalize immunization centres
	Train workers in health facilities in EPI management
	Strengthen supportive supervision
	Monitor immunization activities
	Strengthen the links between the community and health departments
	Organize internal and external EPI evaluations
	Conduct immunization coverage surveys
Implement a mechanism to search for those lost to follow-up	Develop guidelines for locating those lost to follow-up
	Develop tools: timetables, tracking forms
	Raise awareness among parents regarding the importance of the EPI (immunization schedule)
	Conduct active searches for dropouts
Implementation of intensive immunization activities (selected according to performance)	Develop intensified immunization activity plans
	Organize intensified immunization activities
	Organize meetings to evaluate IIAs
Introduction of the pneumococcal and rotavirus vaccines into the routine EPI	Assess the cold chain capacities and estimate the vaccines, etc. before introducing the pneumococcal and rotavirus vaccines into the routine EPI
	Develop a plan for introducing the rotavirus vaccine into the routine EPI.
	Update the immunization schedule, training module and management tools in light of the new rotavirus vaccine
	Order vaccines and other inputs
	Strengthen the capabilities of health workers and management teams
	Raise awareness among health workers, the media and the people on the introduction of the pneumococcal and rotavirus vaccines into the routine EPI

	Organize ceremonies around the launch of new pneumococcal and rotavirus vaccines
	Provide supervision and monitoring of immunization activities to prevent pneumococcus and rotavirus in the districts
	Perform a post-introduction evaluation of the pneumococcal and rotavirus vaccines in the routine EPI
Integrate other child survival interventions in the routine EPI (vitamin A supplementation, distribution of ITNs, mebendazole, etc.)	Organize a consensus workshop on interventions to be integrated
	Develop an Integrated Child Survival Plan (distribution of ITNs, micronutrients and mebendazole).
	Update, validate and distribute guidelines, management tools
	Order and distribute supplies
	Organize the distribution of micronutrient supplements
	Provide monitoring of activity integration
	Ensure coordination of activity integration, from planning to implementation, monitoring and evaluation, with other programmes (malaria, IMCI, RH, nutrition)
Improve the system of regularly supplying the EPI centres with high–quality vaccines, injection safety supplies and cold chain accessories	Order vaccines and other EPI supplies on a quarterly basis
	Ensure vaccines and other EPI supplies are distributed to health prefectures
	Provide fuel for restocking vaccines and supplies at all levels
	Provide EPI centres with a regular supply of kerosene
Develop the maintenance and rehabilitation of EPI equipment	Provide immunization centres with immunization supplies
	Provide health prefectures and regions with communications equipment
	Equip the national, regional and prefectural levels with vehicle assets
	Create EPI expansion centres while respecting national standards regarding the establishment of immunization centres
	Provide maintenance to the national-level cold room
	Provide maintenance for the energy source (generator) of the national-level cold room
	Build a new cold room at the national level
	Provide cold chain maintenance to the health prefecture bases
	Train EPI workers during supervisions on basic refrigerator preventative maintenance and repair techniques
	Contract with a private company for maintenance of large pieces of equipment
Strengthen the immunization waste	Distribute biomedical waste management standards

destruction system	Buy/build incinerators for the health prefecture level
	Train vaccinators on immunization waste management during supervision sessions
Communication to promote the routine EPI	Update the integrated communication plan and the strategic plan for relaunching the routine EPI
	Develop management tools and supportive supervision tools for communication activities
	Raise awareness among parents through home visits, educational programming (community radio, radio, national TV and the written press)
	Disseminate guidelines, educational aids and messages on immunization via various channels of communication
	Develop a partnership with the NGOs, CSOs and other non-profit organizations
	Conduct advocacy with decision-makers (executive, legislative and decentralized officials) and opinion leaders in order to mobilize resources for the EPI and revitalize PHC bodies
	Organize an African Immunization Week (AIW) each year
	Organize community dialogues and debates with the goal of encouraging behaviors favorable to immunization
	Conduct behavioural surveys/studies on immunization
	Document communication activities on behalf of the EPI (collection, analysis and dissemination)
Strengthen the management system for vaccines and other supplies (auto-disable syringes, auto-destruct syringes, diluent, safety boxes and cold chain accessories)	Apply the Multi-Dose Vial Policy (MDVP) to all the EPI centres
	Set up vaccine stock management software at the regional and prefectural levels
	Train prefectural EPI coordinators on DVD-MT software
	Train warehouse managers on effective warehouse management
	Train EPI personnel at all levels in vaccine stock management
	Evaluate vaccine management and injection safety at the national and prefectural levels
	Organize regular missions at the national level to monitor the management of supplies by health prefectures
	Monitor vaccine wastage
Polio eradication	Develop microplans in targeted districts
	Organize mass campaigns (polio NIDs and LIDs) in case of need
	Develop AFP case surveillance plans at the district level
	Conduct active AFP surveillance
	Monitor performance indicators of AFP surveillance

	Support the operations of the various polio committees (NPEC, NCC, containment)
	Support the operations of the polio laboratory at the Pasteur Institute of Bangui
MNT elimination	Promote delivery hygiene for the prevention of MNT Raise awareness among health workers and midwives about proper hygiene during deliveries
	Develop microplans in targeted districts
	Organize mass campaigns against MNT
	Conduct MNT risk analysis
	Develop MNT surveillance plans at the district level
	Conduct active surveillance
	Monitor performance indicators of MNT surveillance
	Organize supervision for health workers
	Raise awareness among health workers and midwives about proper hygiene during deliveries
Yellow fever control	Develop microplans in targeted districts
	Organize mass campaigns
	Develop YF surveillance plans at the district level
	Conduct active surveillance
	Monitor performance indicators of YF surveillance
	Organize supervision for health workers
	Monitor performance indicators of MNT surveillance [sic]
	Support the operations of the YF laboratory at the Pasteur Institute of Bangui with equipment and supplies
Pre-elimination of measles	Develop microplans in targeted districts
	Organize mass campaigns
	Develop measles surveillance plans at the district level
	Conduct active surveillance
	Monitor performance indicators of measles surveillance
	Organize supervision for health workers
	Monitor performance indicators of measles surveillance
	Support the operations of the YF laboratory at the Pasteur Institute of Bangui with equipment and supplies
Establish case-based surveillance using sentinel sites	Set up a sentinel surveillance system

	Monitor the indicators of surveillance performance
	Provide sentinel sites with specimen collection kits, specimen transportation and diagnostics
	Equip the laboratory with reagents and diagnostic equipment
Strengthening integrated disease surveillance	Develop an integrated preparation and outbreak response plan
	Perform integrated disease surveillance
	Monitor performance indicators
	Equip the laboratory with reagents and diagnostic equipment
	Provide data collection materials at all levels
	Strengthen and diversify the data transmission channels (including new information technologies) at all levels
	Draft and publish a quarterly bulletin for feedback
	Perform monitoring and evaluation of surveillance activities (supervision and coordination meetings at all levels)
Contributing to the establishment of an AEFI monitoring system	Update the AEFI care guide in light of the IDP
	Systematically report all AEFI cases
	Train health workers about AEFIs
	Systematically report all AEFI cases
	Investigate severe AEFIs
	Treat confirmed cases of AEFI
Strengthening emergency management and outbreak coordination	Support the operations of the Epidemic and Emergency Management Committee (COGES)
	Establish and equip a rapid intervention team to respond to outbreaks and emergency situations
Contributing to the application of IHRs	Implement the 2005 IHR guidelines
	Train stakeholders in the field on the 2005 IHRs
	Raise awareness among the community about the 2005 IHRs
Contributing to Health System Strengthening	Expand EPI centres
	Equip the target health facilities of the health regions and districts with vehicle assets, computer equipment and incinerators

	Equipment remote and hard-to-access centres with solar-powered cold chain equipment
	Adapt the COGES management tools for popular use
	Provide monitoring & evaluation of activities
Developing the technical and managerial capabilities of personnel	Evaluate the training needs in different areas of planning, management, monitoring and evaluation at the level of District and Regional Management Teams for everyday EPI use in immunization centres (vaccine and other supply management, vaccine administration, preventative cold chain maintenance and data management)
	Develop an EPI workforce plan
	Relocate existing staff
	Lobby the Government to recruit qualified personnel
	Train/re-train members of PHC management bodies
	Train the management staff of the Ministry of Health, Planning and Finance in financial management of the EPI
	Evaluate facilities
Implementing motivational mechanisms in order to make the EPI personnel more efficient	Motivate personnel to attain a high level of efficiency at all levels
Strengthening the disease management system	Evaluate what the data management system needs in order to function properly
	Develop/adapt the data management tools
	Provide EPI workers with data management tools
	Provide monitoring & evaluation of EPI activities
Development of a mechanism to make EPI funding sustainable through the Government, including promoting the Vaccine Independence Initiative	Lobby decision-makers: - President of the Republic (Chair of the Treasury Committee); - National Mediator; - the National Assembly; - Council of Ministers for EPI funding from the State in order to ensure vaccine independence.
	Develop a simplified procedure for allocating appropriations in collaboration with the Ministry of Planning and Finance (prepayment)
	Update the funding plan and submit it to the adjudication commission during development of the State budget

	Organize a quarterly progress meetings at the ICC regarding funds for the EPI (financial report)
	Conduct audits (internal and external) of EPI activities
	Implement the recommendations of financial audits and reports
Strengthening the active partnership with local authorities, private companies, NGOs, etc..	Solicit the involvement of the private sector and NGOs in immunization funding, from planning to the implementation of activities.
	Conduct targeted advocacy towards potential partners (diplomatic representatives, international organizations, religious groups) and revive those partnerships that had come to an end

6. TIMELINE OF PRINCIPAL ACTIVITIES

Table XXVI: Activity schedule for the 2011-2015 cMYP

PRINCIPAL ACTIVITIES	2011	2012	2013	2014	2015
A. PROVISION OF SERVICES					
Ensure outreach strategy immunizations	X	X	X	X	X
Revitalize immunization centres	X	X	X	X	X
Train workers from health facilities in EPI management	X	X	X	X	X
Strengthen supportive supervision	X	X	X	X	X
Develop guidelines for locating those lost to follow-up	X	X	X	X	X
Develop tools: timetables, tracking forms	X	X	X	X	X
Raise awareness among parents regarding the importance of the EPI (immunization schedule)	X	X	X	X	X
Conduct active searches for dropouts	X	X	X	X	X
Monitor immunization activities	X	X	X	X	X
Organize microplanning for activities	X	X	X	X	X
Strengthen the links between the community and health departments	X	X	X	X	X
Develop plans for intensified immunization activities	X	X	X	X	X
Organize intensified immunization activities	X	X	X		
Organize a review of the EPI	X	X	X	X	X
Develop plans for intensified immunization activities	X	X	X		
Assess the cold chain capacities and estimate the vaccines, etc. before introducing the pneumococcal, rotavirus and meningococcal vaccines into the routine EPI	X	X	X	X	X
Develop a plan for introducing the new rotavirus vaccine into the routine EPI.	X	X			
Update the immunization schedule, training module and management tools in light of the new pneumococcal and rotavirus vaccines	X	X	X	X	X
Order vaccines and other inputs	X	X	X	X	X
Strengthen the capabilities of health workers and management teams	X	X			
Raise awareness among health workers, the media and the people on the introduction of the pneumococcal and rotavirus vaccines into the routine EPI	X	X	X	X	X
Organize a ceremony for the launch of the new vaccine	X	X	X	X	X

PRINCIPAL ACTIVITIES	2011	2012	2013	2014	2015
Provide supervision and monitoring of immunization activities to prevent pneumococcus and rotavirus at the district level	X	X	X	X	X
Perform a post-introduction evaluation of the pneumococcal and rotavirus vaccines in the routine EPI	X	X	X	X	X
Organize a consensus workshop on interventions to be integrated	X		X		X
Develop an Integrated Child Survival Plan (distribution of ITNs, micronutrients and mebendazole).	X	X	X	X	X
Update, validate and distribute guidelines, management tools	X	X	X	X	X
Order and distribute supplies	X		X		X
Organize the distribution of micronutrient supplements	X	X	X		
Provide monitoring of activity integration	X	X	X	X	X
Ensure coordination of activity integration, from planning to implementation, monitoring and evaluation, with other programmes (malaria, IMCI, RH, nutrition)	X	X	X	X	X
B. REDUCING THE DROP-OUT RATE					
Develop guidelines for locating those lost to follow-up	X				
Develop tools: timetables, tracking forms	X				
Raise awareness among parents regarding the importance of the EPI (immunization schedule)	X	X	X	X	X
Conduct active searches for dropouts	X	X	X	X	X
C. VACCINE PROCUREMENT					
Order vaccines and other EPI supplies on a semiannual basis	X	X	X	X	X
Ensure vaccines and other EPI supplies are distributed to health prefectures	X	X	X	X	X
Provide fuel for restocking vaccines and supplies at all levels	X	X	X	X	X
Provide EPI centres with a regular supply of kerosene					
D. REDUCING THE VACCINE WASTAGE RATE					
Apply the Multi-Dose Vial Policy (MDVP) to all the EPI centres	X	X	X	X	X
Set up vaccine stock management software at the regional and prefectural levels	X	X	X	X	X
Train prefectural EPI coordinators on DVD-MT software	X	X			
Train warehouse managers on effective warehouse management	X	X	X	X	X
Train EPI personnel at all levels in vaccine stock management	X	X	X	X	X
Evaluate vaccine management and injection safety at the national and prefectural levels	X	X	X	X	X

PRINCIPAL ACTIVITIES	2011	2012	2013	2014	2015
Organize regular missions at the national level to monitor the management of supplies by health prefectures	X	X	X	X	X
Monitor vaccine wastage	X	X	X	X	X
E. EPI EQUIPMENT MAINTENANCE AND REHABILITATION					
Provide immunization centres with immunization supplies					
Provide health prefectures and regions with communications equipment					
Equip the national, regional and prefectural levels with vehicle assets					
Create EPI expansion centres while respecting national standards regarding the establishment of immunization centres					
Provide maintenance to the national-level cold room					
Provide maintenance for the energy source (generator) of the national-level cold room					
Build a new cold room at the national level					
Provide cold chain maintenance to the health prefecture bases					
Train EPI workers during supervisions on basic refrigerator preventative maintenance and repair techniques					
Contract with a private company for maintenance of large pieces of equipment					
F. WASTE MANAGEMENT					
Distribute biomedical waste management standards	X				
Buy/build incinerators for health prefecture bases	X	X	X	X	
Train vaccinators in immunization waste management during supervision sessions					
G. COMMUNICATION TO PROMOTE THE EPI					
Update the integrated communication plan and the strategic plan for relaunching the routine EPI					
Develop management tools and supportive supervision tools for communication activities	X	X	X	X	X
Raise awareness among parents through home visits, educational programming (community radio, radio, national TV and the written press)	X	X	X	X	X
Disseminate guidelines, educational aids and messages on immunization via various channels of communication	X	X	X	X	X
Develop a partnership with the NGOs, CSOs and other non-profit organizations	X	X	X	X	X
Conduct advocacy with decision-makers (executive, legislative and decentralized officials) and opinion leaders in order to mobilize resources for the EPI and revitalize PHC bodies	X	X	X	X	X

PRINCIPAL ACTIVITIES	2011	2012	2013	2014	2015
Organize an African Immunization Week (AIW) each year	X	X	X	X	X
Organize community dialogues and debates with the goal of encouraging behaviors favorable to immunization					
Conduct behavioural surveys/studies on immunization					
Document communication activities on behalf of the EPI (collection, analysis and dissemination)					
H. . POLIO ERADICATION					
Develop microplans in targeted districts	X	X	X	X	X
Organize mass campaigns (polio NIDs and LIDs) in case of need	X	X	X	X	X
Develop AFP case surveillance plans at the district level	X	X	X		
Conduct active AFP surveillance	X	X	X	X	X
Monitor performance indicators of AFP surveillance	X	X	X	X	X
Support the operations of the various polio committees (NPEC, NCC, containment)	X	X	X	X	X
Support the operations of the polio laboratory at the Pasteur Institute of Bangui	X	X	X	X	X
I. MNT ELIMINATION					
Conduct MNT risk analysis					
Develop MNT surveillance plans at the district level					
Conduct active surveillance					
Monitor performance indicators of MNT surveillance					
Organize supervision for health workers	X				
Raise awareness among health workers and midwives about proper hygiene during deliveries	X	X	X	X	X
J. . CONTROL OF YELLOW FEVER					
Develop YF surveillance plans at the district level	X	X	X	X	X
Conduct active surveillance	X	X	X	X	X
Monitor performance indicators of YF surveillance	X	X	X	X	X
Organize supervision for health workers	X	X	X	X	X
Monitor performance indicators of MNT surveillance	X	X	X	X	X
Support the operations of the YF laboratory at the Pasteur Institute of Bangui with equipment and supplies	X	X	X	X	X

PRINCIPAL ACTIVITIES	2011	2012	2013	2014	2015
K. . MEASLES CONTROL					
Develop measles surveillance plans at the district level	X	X	X	X	X
Conduct active surveillance	X	X	X	X	X
Monitor performance indicators of measles surveillance		X			
Organize supervision for health workers	X	X	X	X	X
Monitor performance indicators of measles surveillance	X	X	X	X	X
Support the operations of the YF laboratory at the Pasteur Institute of Bangui with equipment and supplies	X	X	X	X	X
L. CAMPAIGNS AGAINST HIB, PNEUMOCOCCAL, HEPATITIS B AND ROTAVIRUS INFECTIONS (SURVAC)					
Implement a sentinel surveillance system for pediatric bacterial meningitis, hepatitis B, ARIs and acute diarrheal diseases	X	X	X	X	X
Monitor the indicators of surveillance performance	X				
Provide sentinel sites with specimen collection kits, specimen transportation and diagnostics	X		X		X
Equip the laboratory with reagents and diagnostic equipment					
M. **INTEGRATED DISEASE SURVEILLANCE (SURVAC)**	X	X	X	X	X
Develop an integrated preparation and outbreak response plan					
Conduct integrated diseases surveillance and AEFI surveillance					
Monitor performance indicators					
Equip the laboratory with reagents and diagnostic equipment					
Provide data collection materials at all levels	X				
Strengthen and diversify the data transmission channels (including new information technologies) at all levels	X	X	X	X	X
Draft and publish a quarterly bulletin for feedback	X	X	X	X	X
Perform monitoring and evaluation of surveillance activities (supervision and coordination meetings at all levels)	X	X	X	X	X
Update the AEFI care guide in light of the IDP	X	X	X	X	X
Train health workers about AEFIs	X	X	X	X	X
	X	X	X	X	X

PRINCIPAL ACTIVITIES	2011	2012	2013	2014	2015
Support the operations of the Epidemic and Emergency Management Committee (COGES)	X	X	X	X	X
Establish and equip a rapid intervention team to respond to outbreaks and emergency situations	X	X	X	X	X
Implement the 2005 IHR guidelines	X	X	X	X	X
Train stakeholders in the field on the 2005 IHRs	X	X	X	X	X
Raise awareness among the community about the 2005 IHRs					
N. . FUNDING, ADVOCACY AND PROGRAMME MANAGEMENT					
Expand EPI centres	X				
Equip the target health facilities of the health regions and districts with vehicle assets, computer equipment and incinerators	X	X	X	X	X
Equip remote centres with refrigerators/solar freezers	X		X		X
Provide monitoring & evaluation of activities	X				
Evaluate the management training needs of the EPI at all levels	X	X	X	X	X
Develop an EPI workforce plan					
Lobby the Government to recruit qualified personnel					
Contribute to initial/refresher training of the members of PHC management bodies					
Motivate personnel to attain a high level of efficiency at all levels					
Develop/adapt the data management tools					
Provide EPI workers with data management tools					
Provide monitoring & evaluation of EPI activities					
Organize a consensus workshop on child survival interventions to be integrated into a routine EPI	X				
Develop an Integrated Child Survival Plan (distribution of LLITNs, micronutrients and mebendazole).	X	X	X	X	X
Organize the distribution of micronutrient supplements	X		X		X
Ensure the distribution of ITNs and mebendazole	X	X	X	X	X

PRINCIPAL ACTIVITIES	2011	2012	2013	2014	2015
Conduct integrated monitoring of the use of vitamin A, mebendazole and ITNs in parallel with routine immunizations	X	X	X	X	X
Develop a simplified procedure for allocating appropriations in collaboration with the Ministry of Planning and Finance (prepayment)	X	X			
Update the funding plan and submit it to the adjudication commission during development of the State budget	X	X	X	X	X
Organize a quarterly ICC meeting	X	X	X	X	X
Conduct audits (internal and external) of EPI activities	X	X	X	X	X
Apply the recommendations resulting from financial audits and reports	X	X	X	X	X
Solicit the involvement of the private sector and NGOs in immunization funding, from planning to the implementation of activities.	X	X	X	X	X

7. ANALYSIS OF PROGRAMME COSTS AND FUNDING

7.1. Methodology

The analysis of programme costs and funding addressed the collection of data on recurrent costs, capital expenditures, and costs shared by all levels of the health system. The programme partners (WHO, UNICEF) and management staff from the Ministry of Finance and Budget, Planning, Economy and International Cooperation participated in this exercise.

7.2.1. Analysis of current and projected programme expenditures

According to table XXVII below, the total programme cost comes to 10 269 689 US$, of which 92% went to immunization expenses and 8% went to the shared costs for 2010. The immunization campaign costs represented 52% of the total cost of the programme and 54% of total immunization expenditures, including shared costs.

Table XXVII: 2010 baseline indicators

Baseline year indicator	2010
Total immunization expenditures	**$9 448 639**
Immunization campaigns	$5 305 094
Routine immunization	$4 143 545
per capita	$0.9
per child DTP3	$50.2
% vaccines and injection supplies	24.2%
% Government funding	20.7%
% total health care expenditures	3.0%
% total government health expenditures	8.5%
% GDP	0.2%
Total shared costs	**$821 049**
% of shared costs in the total	80%
TOTAL	**$10 269 689**

The cost of routine immunization was estimated to be US$ 0.9 per capita, which is the equivalent of 0.2% of the per capita GDP for the same period. The cost per child immunized with three doses of pentavalent vaccine comes to US$ 50.2.

7.2.2. Detailed programme cost

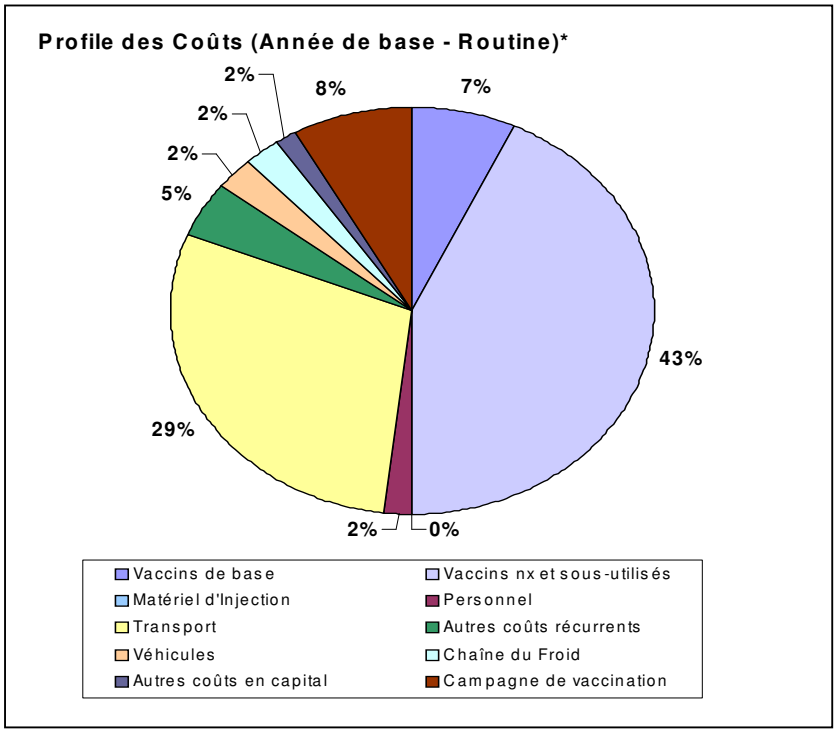
The primary financial data are summarized by cost category in Table XXVIII below.

Table XXVIII: Detailed cost of the EPI in 2010

Cost category	Item	2010 amount
	Baseline vaccine	$965 806
	Injection supplies	$38 588
	Personnel	$563 106
	Transportation	$89 922
	General maintenance	$1 687 983
	Programme management	$144 636
	Other recurrent costs	$12 240
Recurring costs	**Subtotal for Recurrent Costs**	**$3 502 281**
	Vehicles	$46 605
	Cold chain equipment	$30 626
	Other capital expenditures	$154 231
Capital costs	**Subtotal for capital expenditures**	**$231 461**
	Polio campaign	$1 661 956
	Measles campaign	$0
	Yellow fever campaign	$3 643 139
Immunization campaign	**Subtotal for campaign costs**	**$5 305 094**
	Shared personnel costs	$784 339
	Shared transportation costs	$17 005
	Buildings	$19 706
Shared costs	**Subtotal for shared costs**	**$821 049**
GRAND TOTAL		**$9 859 886**

In the above table, programme costs are broken down as follows: recurrent costs 36%; capital costs 2%; campaigns 53%; and distributed costs 9%.

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



[Translation of Chart Key:]

Basic vaccines	New and under-used vaccines
Injection supplies	Personnel
Transportation	Other recurrent costs
Vehicles	Cold chain
Other capital costs	Immunization campaigns

7.2. Routine EPI funding for the baseline year

The programme is the beneficiary of four primary funding sources: Government funding, external resources, local groups and communities. The chart below shows the 2010 contributions from each funding source.

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

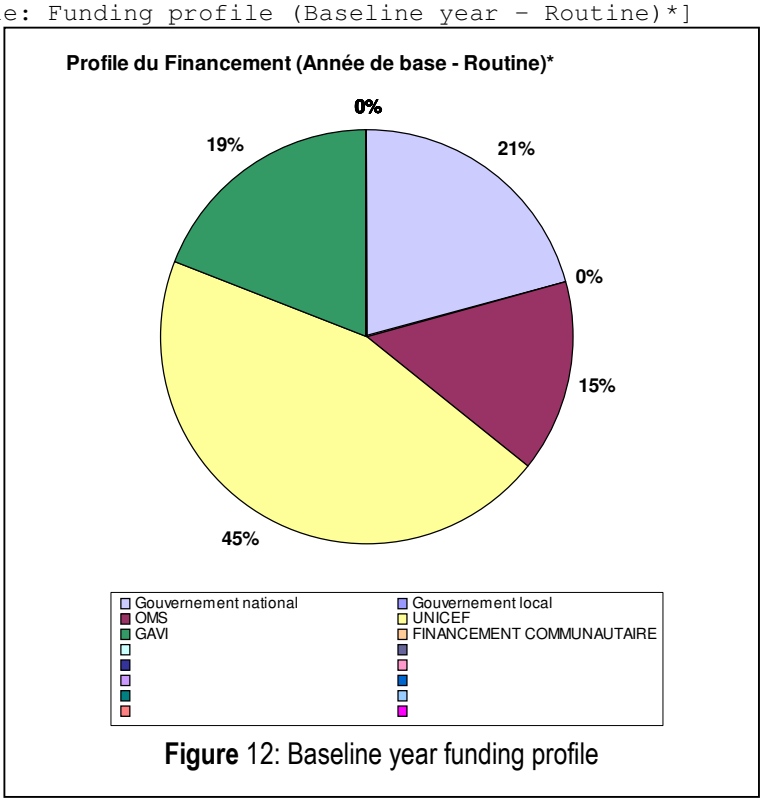


Figure 12: Baseline year funding profile

[Translation of Chart Key:]

National Government	Local government
WHO	UNICEF
GAVI	Community funding

In 2010, EPI funds were ensured by the Government (21%), GAVI (19%), WHO (15%) and UNICEF (45%).

GAVI funding is essentially composed of new and under-used vaccine purchases since the country has not received no Immunization Services Support since 2008.

The expenditures of the Government of Central African Republic were primarily allocated towards the payment of staff salaries and to the fees associated with the use of buildings.

It should be noted that the humanitarian aid organizations (MSF, COOPI, MENTOR, IMC, religious NGOs, etc.) operating in those prefectures located in conflict zones do play a role in EPI activities. Nevertheless, it is still difficult to determine the exact financial value of their interventions.

7.3. Projected resource requirements and programme funding

7.4.1. Future costs and resource requirements

a) Methods of estimating resources

Estimated resources take into consideration:

- The target population based on the 2003 GPHC with a growth rate of 2.5%;
- The immunization coverage objectives to achieve each year;
- Introduction of the pneumococcal vaccine in 2011 and the rotavirus vaccine in 2013;
- the prices of vaccine doses are the baseline prices from UNICEF proposed in the cost and funding analysis tool;
- Scheduled polio SIAs in the form of annual response to imported cases;
- Mass immunization campaigns for maternal and neonatal tetanus (annual risk-based immunization response); the measles follow-up campaign (2011, 2013 and 2015) and the yellow fever immunization campaign;
- The mean salary for each personnel category;
- Capacity building;
- The EPI centre expansion plan from 2011 to 2015;
- The EPI logistics rehabilitation plan for the period from 2011 to 2015;
- The estimated cost of fuel and other maintenance costs, taking into consideration the supply channel for vaccines, supervision and outreach/mobile strategies;
- The 2006-2015 National Health Development Plan;
- The Poverty Reduction Strategy Paper.

The funding estimates were reached using a combination of the data provided by the development partners, from the Ministry of Public Health and Population, from the Ministry of Finance and Budget and from the Ministry of the Economy, Planning and International Cooperation. The State's contribution was estimated on the basis of prior funding and the principle that the State will continue to pay salaries, health infrastructure construction and maintenance, logistics and procurement of the budget item for EPI vaccines and supplies as part of the Vaccine Independence Initiative.

For the partners, it was assumed that they will continue to support the programme through traditionally-funded areas. Funding for new vaccines will follow the GAVI co-financing principle applied to low-income countries.

b) Resource requirements

Table XXIX: projected resource requirements from 2011 to 2015

		Projected future costs					
Cost category		**2011**	**2012**	**2013**	**2014**	**2015**	**2011-2015 Total**
		US$	**US$**	**US$**	**US$**	**US$**	**US$**
	Baseline vaccine	$2 094 120	$2 774 774	$4 780 772	$4 975 687	$5 538 478	$20 163 831
	Traditional	$169 220	$174 800	$188 375	$209 963	$231 931	$974 290
	Under-used	$1 128 040	$1 217 116	$1 357 888	$1 506 910	$1 667 684	$6 877 638
	New	$796 860	$1 382 858	$3 234 509	$3 258 814	$3 638 863	$12 311 903
	Injection supplies	$110 022	$132 880	$142 410	$154 354	$167 173	$706 839
	Personnel	$602 583	$662 725	$690 177	$713 766	$734 695	$3 403 946
	Salaries of existing personnel (immunization specific)	$188 223	$199 636	$207 466	$211 616	$215 848	$1 022 789
	Per diems for the outreach/mobile strategy	$253 627	$294 627	$310 112	$326 100	$339 275	$1 523 741
	Per diems for surveillance and monitoring	$160 733	$168 462	$172 599	$176 051	$179 572	$857 416
	Transportation	$107 934	$153 941	$150 604	$161 160	$173 642	$747 280
	Fixed strategy and delivery of vaccines	$59 963	$85 523	$83 669	$89 533	$96 468	$415 156
	Outreach strategy	$35 978	$51 314	$50 201	$53 720	$57 881	$249 093
	Mobile strategy	$11 993	$17 105	$16 734	$17 907	$19 294	$83 031
	General maintenance	$1 404 233	$1 663 357	$2 620 769	$3 538 512	$4 927 586	$14 154 457
	Cold chain maintenance	$1 100 743	$1 238 237	$2 153 048	$2 992 022	$4 330 183	$11 814 232
	Maintenance of other equipment	$281 679	$402 873	$445 029	$523 051	$573 494	$2 226 127
	Buildings (electricity, water, etc.)	$21 811	$22 247	$22 692	$23 440	$23 908	$114 098
	Short-term training	$237 071	$143 910	$73 195	$131 553	$60 704	$646 434
	Social mobilization and IEC	$107 573	$66 880	$105 524	$49 903	$99 696	$429 576
	Disease surveillance and control	$419 024	$427 404	$435 952	$444 671	$453 565	$2 180 616
	Programme management	$241 784	$183 920	$187 598	$191 350	$195 177	$999 829
	Other recurrent costs	$56 549	$66 071	$70 028	$54 904	$57 602	$305 153
Recurring costs	**Subtotal for Recurrent Costs**	**$5 380 892**	**$6 275 861**	**$9 257 031**	**$10 415 860**	**$12 408 317**	**$43 737 961**
							$0
	Vehicles	$48 357	$71 060	$73 334	$97 415	$48 794	$338 959
	Cold chain equipment	$23 301	$33 515	$23 955	$116 171	$159 873	$356 814
	Other capital expenditures	$247 837	$247 837	$247 837	$247 837	$247 837	$1 239 183
Capital expenditures	**Subtotal for Recurrent Costs**	**$319 494**	**$352 412**	**$345 125**	**$461 422**	**$456 504**	**$1 934 957**
							$0
	Polio campaign	$1 354 731	$1 372 140	$1 390 393	$1 409 524	$1 429 408	$6 956 195
	Measles campaign	$1 009 843	$0	$1 073 613	$0	$1 137 694	$3 221 150
	MNT campaign	$107 281	$59 821	$38 814	$33 265	$29 324	$268 505
	Yellow fever campaign	$78 569	$972 167	$1 010 408	$1 050 478	$1 094 458	$4 206 081
	Meningitis A campaign	$0	$0	$0	$0	$8 421 726	$8 421 726
Immunization Campaigns	**Subtotal for campaign costs**	**$2 550 424**	**$2 404 128**	**$3 513 228**	**$2 493 267**	**$12 112 610**	**$23 073 657**
							$0
Shared costs	Shared personnel costs	$849 294	$966 205	$1 004	$1 044	$1 079	$4 944

					894	745	134	273
	Shared transportation costs		$17 345	$17 692	$18 046	$18 407	$18 775	$90 264
	Buildings		$21 022	$21 442	$21 871	$23 287	$23 753	$111 375
	Subtotal		**$887 661**	**$1 005 339**	**$1 044 811**	**$1 086 438**	**$1 121 661**	**$5 145 911**
GRAND TOTAL			**$9 138 472**	**$10 037 740**	**$14 160 195**	**$14 456 987**	**$26 099 092**	**$73 892 486**
			$6 588 047	$7 633 613	$10 646 967	$11 963 720	$13 986 481	$50 818 829
			$2 550 424	$2 404 128	$3 513 228	$2 493 267	$12 112 610	$23 073 657

The amount of resources required for the period of the plan (2011-2015) is estimated at US$ 73 892 486 with an average annual amount of US$ 14 778 497. The programme costs are broken down as follows: recurrent costs 59%; capital costs 3%; campaigns 31%; and distributed costs 7%. It should be noted that the recurrent costs will increase in relation to the baseline year following the introduction of new vaccines.

[Chart title: Projected Resource Requirements**]

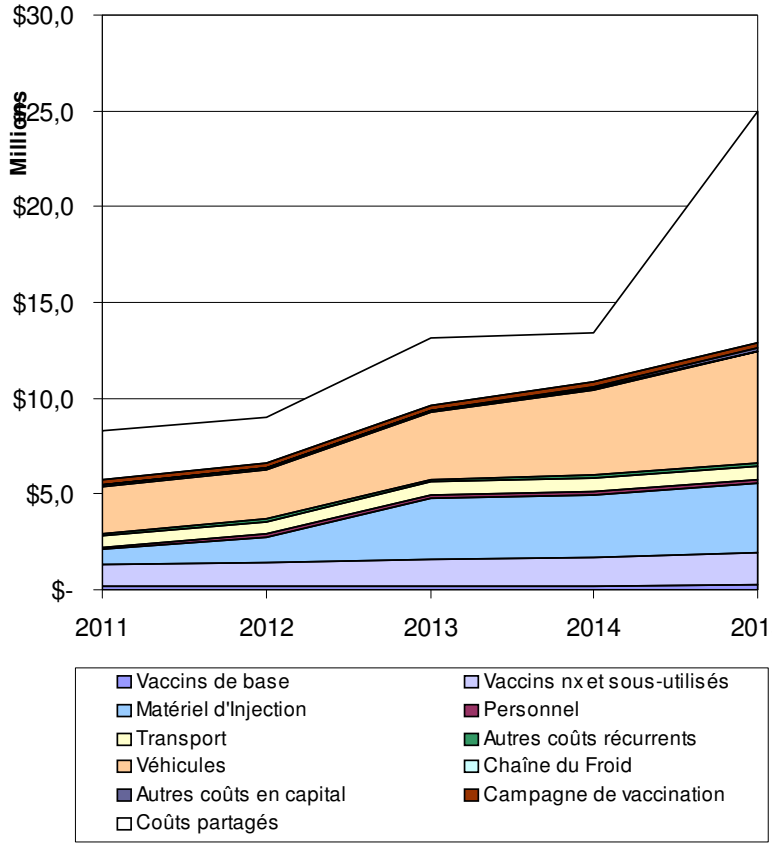


Figure 13: **Projected resource requirements from 2011 to 2015**

[Translation of Chart Key:]

Basic vaccines	New and under-used vaccines
Injection supplies	Personnel
Transportation	Other recurrent costs
Vehicles	Cold chain
Other capital costs	Immunization campaign
Shared costs	

The programme costs grow starting in 2011, which can be explained by the introduction of the 13-valent pneumococcal vaccine in 2011, the rotavirus vaccine in 2013 as well as the implementation of supplementary immunization activities (polio, measles, MNT, YF, meningitis).
The cost analysis by immunization strategy shows that 50% of costs are used for the fixed strategy, 30% for the outreach strategy and 20% for the mobile strategy.

[Chart title: Costs by Strategy**]

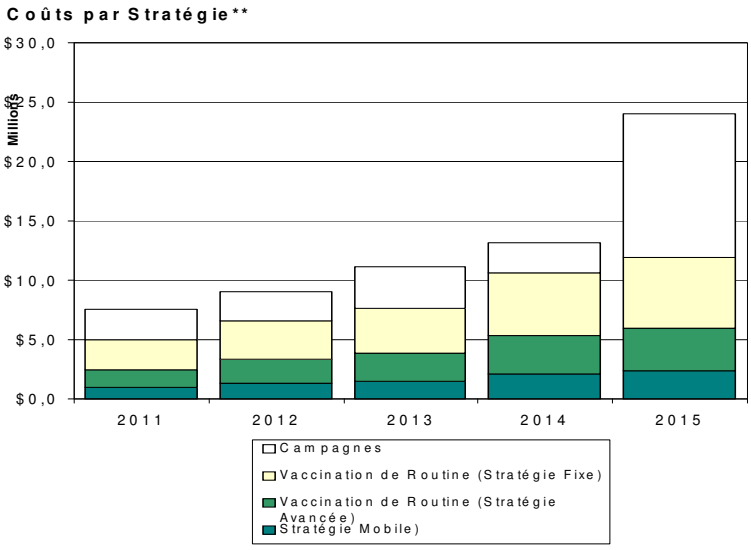


Figure 14: Costs by strategy

[Translation of Chart Key:]
Campaigns
Routine immunizations (Fixed strategy)
Routine immunizations (Outreach strategy)
Mobile strategy

7.4.2. Analysis of the projected funding availability

7.4.2.1. Secured funding

Secured funding derive from concrete commitments undertaken by the Government and its partners. Table 27 below shows the secured funding amount compared to overall funding and by budget line item for the entire period.

Table XXX: Secured funding amount compared to overall cost

Resource requirements, funds, and funding gap*	2011	2012	2013	2014	2015	Avg. 2011 - 2015
Resource requirements	**$9 138 472**	**$10 037 740**	**$14 160 195**	**$14 456 987**	**$26 099 092**	**$73 892 486**
Resource needs (routine immunization)	**$6 588 047**	**$7 633 613**	**$10 646 967**	**$11 963 720**	**$13 986 481**	**$50 818 829**
per capita	$1,4	$1,6	$2,1	$2,3	$2,7	$2,0
per child DTP3	$63,4	$66,9	$85,3	$88,0	$94,8	$81,1
Total secured funding	**$8 972 815**	**$3 719 154**	**$4 021 811**	**$3 448 435**	**$7 409 719**	**$27 571 934**
National government	$2 048 756	$1 981 845	$2 511 763	$1 992 520	$2 261 961	$10 796 845
WHO	$1 619 687	$728 599	$728 599	$728 599	$728 598	$4 534 082
UNICEF	$3 389 632	$912 048	$661 795	$705 837	$4 311 247	$9 980 559
GAVI	$1 914 739					$1 914 739
COMMUNITY FUNDING		$96 662	$119 654	$21 479	$107 913	$345 708
Funding gap (secured funding)	**$165 657**	**$6 318 587**	**$10 138 384**	**$11 008 552**	**$18 689 372**	**$46 320 552**
% resource requirements	2%	63%	72%	76%	72%	63%
Total probable funds (non-secured)	**$165 658**	**$6 318 585**	**$10 138 384**	**$11 008 555**	**$18 603 373**	**$46 234 554**
National government	$80 729	$905 657	$1 562 313	$2 676 792	$6 166 729	$11 392 220
WHO		$962 504	$1 221 853	$919 866	$3 918 927	$7 023 150
UNICEF		$1 809 578	$1 963 234	$1 803 835	$2 524 956	$8 101 603
GAVI		$2 621 507	$5 390 984	$5 503 588	$5 972 744	$19 488 823
COMMUNITY FUNDING	$84 929	$19 339		$104 474	$20 017	$228 759
Funding gap (Secured and probable funding)	**-$1**	**$2**	**$1**	**-$3**	**$85 999**	**$85 998**
% resource requirements	0%	0%	0%	0%	0%	0%

Compared to the total programme cost, the proportion of secured funding for the period covering 2011 through 2015 is 63%, exclusive of shared costs.

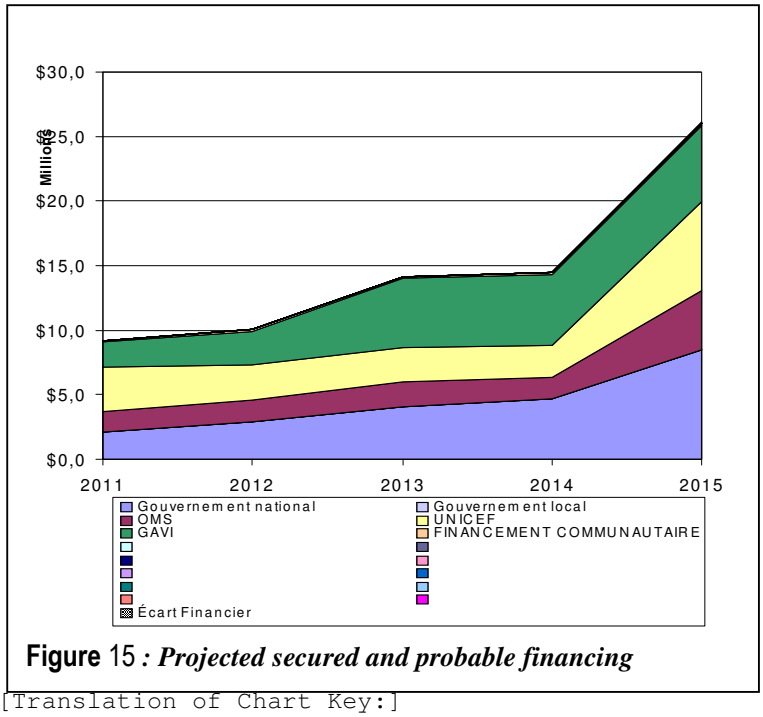


Figure 15 *: Projected secured and probable financing*

[Translation of Chart Key:]
National Government Local government
WHO UNICEF
GAVI COMMUNITY FUNDING
Funding gap

7.4.2.2. Composition of the funding gap

The financial gaps calculated above are based on the following primary financial assumptions:

- The traditional vaccines are financed by UNICEF and the State.
- New and under-used vaccines are co-financed by the State and GAVI, in accordance with the GAVI principle of co-financing.
- Injection supplies are funded by UNICEF and the State.

Table XXXI: Gap by type of funding in US$, CAR 2011-2015

Composition of Financial Gaps	2011	2012	2013	2014	2015	Avg. 2011 - 2015
Vaccines and injection supplies		$2 482 632	$4 419 993	$4 586 890	$5 111 810	$16 601 325
Personnel		$330 507	$482 711	$713 766	$518 847	$2 045 831
Transportation	$1	$19 339		$1	$173 642	$192 982
Activities and other recurrent costs	$56 549	$2 418 590	$2 767 720	$4 196 103	$5 603 642	$15 042 604
Logistics (vehicles, cold chain, etc.)	$24 179	$35 530	$345 125	$461 422	$208 667	$1 074 923
Immunization Campaign	$0	$1 031 988	$2 122 834	$945 897	$7 072 765	$11 173 484
Funding Gap*	**$80 728**	**$6 318 587**	**$10 138 384**			

After the resource requirements have been analyzed, the overall gap comes to US$ 46 131 150, with an annual average of US$ 9 226 230. These gaps represent the uncovered funding requirements for the implementation of the cMYP. The items for which funding gaps are very high remain: vaccines and injection supplies (36%), immunization campaigns (24%), activities and other recurrent costs (33%), personnel (4%) and logistics (2%).

[Chart title: Composition of Funding Gaps*]

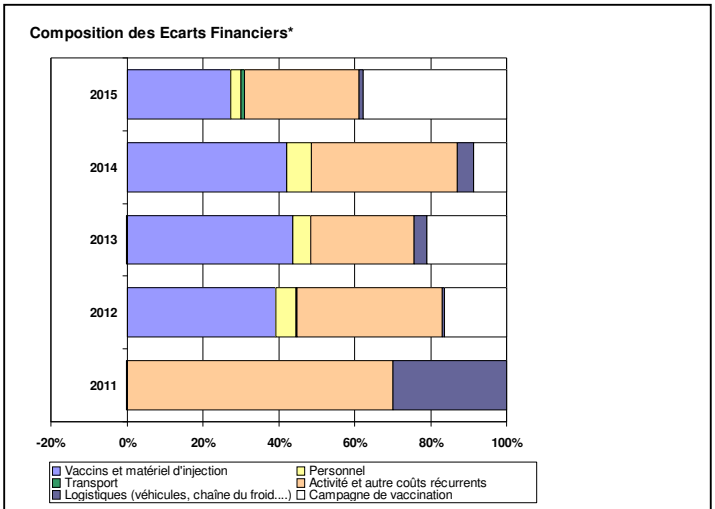


Figure 16 *: Composition of funding gaps*

[Translation of Chart Key:]
Vaccines and injection supplies — Personnel
Transportation — Activities and other recurrent costs
Logistics (vehicles, cold chain, etc.) — Immunization campaigns

8. SUSTAINABILITY OF THE PROGRAMME AND cMYP IMPLEMENTATION STRATEGIES

In order to make the financial plan sustainable, the following strategies will be adopted:

i) Strategy to mobilize adequate quantities of sustainable resources
ii) Strategy to increase the efficacy with which resources are used

8.1. Strategy to mobilize adequate quantities of sustainable resources

8.1.1. Strategy to mobilize internal resources

a) At the State level

In accordance with the recommendation issued during the April 2001 Heads of State Summit in Abuja, the Central African State will have to devote an increasing percentage of its budget to health, starting with at least 10%, in order to attain the goal of 15%. The country's attainment of the HIPC initiative completion point in 2009 should allow it to access the resulting resources in support of the programme.

The following strategies will be implemented to mobilize funding from the Government:

- Advocacy at the highest levels of Government with the support of the partners (WHO, UNICEF, GAVI, World Bank, Sabin Institute, etc.) to lobby for both a budget allocation to fund the EPI and for a 10% increase in the allocation each year;
- Tracking appropriations resulting from the budget line for the Expanded Programme on Immunization within the Ministry of Finance and Budget;
- Lobbying administrators and appropriations managers of the MSPPLS to consider the EPI's projections for submission to the adjudication committee.

b) With local authorities/communes

With the arrival of decentralization, their participation will be even more important in light of the significant role they will play in management and local development due to the creation of a budget line item in the annual commune budgets to fund the EPI whenever these budgets are prepared.

The region and district management teams will be even more involved in the mobilization of resources within these local communes (general council, municipal council).

c) At the community level

In addition to their contribution to the construction of health infrastructure, the community participates in paying for health expenditures through the health care cost recovery system. A portion of the funds recovered are used to take care of workers (community health workers), to purchase kerosene for the cold chain and to purchase gasoline for the outreach strategy.

In order to increase the community's financial contributions to the programme, the technical and material capacity (management tools) of the management committees for health facilities will be improved as part of health system strengthening.

d) Partnership with the NGOs and private sector

The contributions of NGOs working in the health sector and the private sector will be taken advantage of and coordinated through a strengthened partnership. The NGOs will be responsible for conducting the immunization activities in those areas where they operate (post-conflict areas, emergency areas, etc.).

8.1.2. Strategies to mobilize external resources

Within the partnership framework, the health policy of the Central African Government regarding funding is based on combining the national efforts with those of the technical and financial partners to

increase sector funding. This involves the implementation of a coordination and consultation framework with all our partners. Accordingly, the partnership will be strengthened through:

- vigorous diplomacy to urge the return of potential programme partners (JICA, GTZ, etc.);
- heavy lobbying to expand cooperation with new partners;
- improving operations of the ICC;
- rational management of resources allocated to the programme at all levels.

9. VII. MECHANISMS FOR cMYP MONITORING & EVALUATION

The following instruments will be used for monitoring & evaluation of the cMYP:

9.1. For monitoring

- **National Health Information System**

Routine data collected as part of the national HIS will allow monitoring at each level of the health system. Likewise, integrated disease surveillance will be performed through the Epidemic and Emergency Response Unit supported by WHO.

While awaiting the relaunch of the national HIS, the EPI will continue monitoring routine data and vaccine-preventable disease surveillance data.

- **Surveys**

To acquire reliable data capable of monitoring progress, epidemiological or social surveys will be conducted.

- **Supervision and monitoring**

The supervision and monitoring system will be strengthened at each level of the health care pyramid. A regular plan to monitor health activities will be developed by level. The national level will supervise the activities of the health regions on a quarterly basis. Health prefectures will be supervised every two months by the regions. In turn, the prefectures will provide close supervision over the health facilities in their respective zones on a monthly basis.

- **Reviews**

The Ministry of Public Health and Population, in collaboration with the Ministry of Finance and Budget, the Ministry of the Economy, Planning and International Cooperation and the development partners will develop regular external and internal reviews.

9.2. Evaluation

Regular evaluations will be performed as part of the implementation of this 2011-2015 cMYP, which will cover both the implementation of regular activities and the introduction of new vaccines and new immunization technologies. A mid-term evaluation will be performed in 2013 to assess the level of objective achievement, reorient the strategic focuses to improve planning and plan management as they have occurred over the past 2 years. Furthermore, a final evaluation will be conducted one year prior to expiration of the cMYP in order to develop a new cMYP for the period from 2016 to 2020. These last two evaluations will be external.

9.3. Indicators

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

- Immunization coverage by antigen and by district;
- Penta3 immunization coverage by district;
- Number of unimmunized or underimmunized children by district;
- % of districts with a penta3 coverage > 80%;
- Penta1–penta3 dropout rate by district;
- BCG–MCV dropout rate by district;
- % of districts with a penta1–penta3 dropout rate < 10%;
- Wastage rate by antigen and by district;
- Number of vaccine stock-out days in the health prefecture bases throughout the year;
- Proportion of health facilities using appropriate incinerators to destroy used supplies;
- Report timeliness and completeness by prefecture;
- Incidence of and mortality of EPI target diseases:
    - ✓ Incidence of serious AEFIs;
    - ✓ Annualized rate of non-polio AFP cases: >= 2 per 100 000 under 15 years of age
    - ✓ Percentage of stool specimens collected within 14 days: ≥ 80%;
    - ✓ % silent districts (= 0%);
    - ✓ MNT incidence: less than 1 case per 1000 live births;
    - ✓ % of districts investigating at least one suspected case of measles;
    - ✓ % of districts investigating at least one suspected case of yellow fever;
    - ✓ % of districts investigating every measles outbreak;
- Amount and percentage of State budget allocated to health and the EPI;
- Annual rate of increase of State budget allocations to the EPI;
- Annual rate of execution of State budget allocations to the EPI;
- Level of involvement of community participatory bodies in EPI activities;
- Number and proportion of monitoring meetings held;
- Respective financial contributions from various partners (State, community and outside assistance) to the EPI budget (as a %).

10. 2011 ACTION PLAN

10.1. Objectives

10.1.1. General objectives

1. By 2015, achieve at least 90% immunization coverage for all vaccines at the national level and at least 80% at the district level.
2. Reduce the DTP1/DTP3 dropout rates to below 10%.
3. Reduce wastage rates for all vaccines in accordance with recommended standards.
4. Contribute to the eradication of polio, eliminate MNT, YF and pre-eliminate measles.
5. Accelerate the campaign against other infectious diseases such as Hib, hep B, pneumococcus, and rotavirus.
6. By 2015, 90% of the health district will have access to EPI services offered by an adequate number of appropriately-trained personnel.
7. Ensure financial sustainability for immunizations.

10.1.2. Specific Objectives

1) **Reach an immunization coverage of:**

   - **2011:** At least 90% of districts will have an immunization coverage of at least 75% for all vaccines with the exception of the pneumococcus vaccine, which will be introduced in July 2011.
   - DTP-Hep B + Hib 3 greater than or equal to 75%
   - OPV3 greater than or equal to 75%
   - BCG of 80% nationally
   - MCV of 75% nationally
   - YFV of 75% nationally
   - TT2+ of 70% nationally
   - PCV of 40% nationally

2) **Reduce the penta1–penta3 dropout rates to below 15%.**
3) **Reduce wastage rates for all vaccines according to the following rates**

   - BCG: from 25% to 30%
   - DTP-HepB+Hib: from 5% to 10%
   - OPV: from 15% to 20%
   - MCV: from 20% to 22%
   - YFV: from 20% to 33%
   - TT: from 6% to 7%
   - PCV: from 5% to 13%

4) **Eradicate polio, eliminate MNT, YF and pre-eliminate measles:**

   - No cases of WPV detected;
   - Achieve and maintain a real MNT incidence of fewer than 1 case per 1000 live births
   - Maintain the primary indicators of the performance of measles and yellow fever surveillance in every region (80% of districts with specimen collected for at least 1 suspected case and an annualized investigation rate of at least 2 per 100 000 inhabitants.

5) **Accelerate the campaign against other infectious diseases such as Hib, hep B, pneumococcus, and rotavirus.**

   - % of health facilities providing sentinel surveillance
   - % of cases of bacterial meningitis due to Hib or pneumococcus isolated in the laboratory
   - % of acute diarrheal disease cases with stool specimen collected and sent to laboratory
   - % of diarrhea cases due to rotavirus isolated in the laboratory

6) **Strengthen the technical and managerial capabilities of EPI personnel**

   Ensure the training of at least 80% of EPI personnel in programme management.

7) **Increase national funding for immunization by 10%.**

100% of budget allocations to the EPI to fund vaccines with the exception of salaries are actually appropriated.

10.2. Strategies

To achieve the objectives above, the following strategies will be developed:

1. Implement the RED strategy;
2. Implementation of intensive immunization activities (selected according to performance);
3. Introduction of the new pneumococcal and rotavirus vaccines into the routine EPI;
4. Integrating other child survival interventions in the routine EPI (vitamin A supplementation, distribution of ITNs, mebendazole, etc.);
5. Improving the supply management system for vaccines and EPI supplies;
6. Strengthening EPI logistics (renewing/rehabilitating and maintaining EPI equipment);
7. Improving injection safety (new technologies and waste management);
8. Communication to promote the routine EPI;
9. Polio eradication;
10. MNT elimination;
11. Yellow fever control;
12. Pre-elimination of measles;
13. Strengthening epidemiological surveillance (integrated, case-based and by sentinel site) and response;
14. Contributing to the establishment of an AEFI monitoring system;
15. Strengthening emergency management and outbreak coordination;
16. Contributing to the application of IHRs;
17. Contributing to Health System Strengthening;
18. Developing the technical and managerial capabilities of personnel;
19. Implementing motivational mechanisms in order to make the EPI personnel more efficient;
20. Strengthening the disease management system;
21. Development of a mechanism to make EPI funding sustainable through the Government, including promoting the Vaccine Independence Initiative;
22. Strengthening the active partnership with local authorities, private companies, NGOs, etc.

10.3. Activity timeline

Table XXXII: Activity timeline and 2011 action plan budget

PRINCIPAL ACTIVITIES	January	February	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Lead organization	BUDGET US$
A. PROVISION OF SERVICES														
Expand immunization teams for outreach strategy	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	$87 316
Strengthen supportive supervision	X	X	X	X	X	X	X	X	X	X	X	X	DPEV, DRS, ECD, Partners	$101 868
Monitor the activities of the immunization centres	X	X	X	X	X	X	X	X	X	X	X	X	DPEV, DRS, ECD, Partners	$98 958
Organise micro-planning workshops for routine activities			X			X			X			X	DPEV, DRS, ECD, Partners	$72 763
Train the EPI coordinators of the national, regional and prefectural levels in planning, management and monitoring & evaluation								X					DPEV, DRS, ECD, Partners	$93 137
Train health workers using operational units for EPI management and preventative cold chain maintenance								X					DPEV, DRS, ECD, Partners	$72 763
Organize an external review													DPEV, DRS, ECD, Partners	$145 526
B. REDUCTION OF DROPOUT RATE														
Develop guidelines for locating those lost to follow-up				X									DPEV	
Develop tools: timetables, tracking forms				X									DPEV	$29 105
Raise awareness among parents regarding the importance of the EPI (immunization schedule)	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Conduct active searches for dropouts	X	X	X	X	X	X	X	X	X	X	X	X	CCS	
C. INTEGRATION OF THE CHILD SURVIVAL INTERVENTIONS INTO THE ROUTINE EPI														
Organize a consensus workshop on interventions to be integrated									X				DPEV,DSC, DMPM, Partners	$43 658
Develop an Integrated Child Survival Plan (distribution of ITNs, micronutrients and mebendazole).									X				DPEV,DSC, DMPM, Partners	
Update, validate and distribute guidelines, management tools									X				DPEV	
Order and distribute supplies							X	X					DPEV,DSC, DMPM,	

													Partners	
Organize the distribution of micronutrient supplements										X	X	X	DPEV,DSC, DMPM	$14 553
Provide monitoring of activity integration										X	X	X	DPEV,DSC, DMPM	$14 553
Ensure coordination of activity integration, from planning to implementation, monitoring and evaluation, with other programmes (malaria, IMCI, RH, nutrition)										X	X	X	DPEV,DSC, DMPM	
D. INTRODUCTION OF NEW VACCINES														
Develop an action plan pertaining to the introduction of the pneumococcal and rotavirus vaccines into the routine EPI			X									X	DPEV	
Update the immunization schedule and management tools					X								DPEV	
Develop/reproduce the training module and management tools for introducing the pneumoccal vaccine;					X								DPEV, Partners	$36 381
Train workers involved in the management of pneumococcal vaccines in the districts					X	X							DPEV, Partners	$101 868
Order vaccines and other inputs	X												DPEV	
Raise awareness among health workers, the media and the people on the introduction of the pneumococcal and rotavirus vaccines into the routine EPI						X	X	X	X	X	X	X	DPEV,DCS	$14 553
Organize a ceremony for the launch of the new vaccine							X						DPEV, DCS	$14 553
Provide supervision and monitoring of immunization activities to prevent pneumococcus in the districts								X	X	X	X	X	DPEV, DRS, ECD, Partners	
Perform a post-introduction evaluation of the pneumococcal vaccine in the routine EPI												X	DPEV, Partners	$49 479
E. VACCINE PROCUREMENT														
Order vaccines and other EPI supplies on a semiannual basis			X							X			DPEV	
Ensure vaccines and other EPI supplies are distributed to health prefectures		X			X			X			X		DPEV	$43 658
Provide the health prefectures with regular fuel supplies for the EPI centres		X			X			X			X		DPEV	$203 736
F. REDUCING THE VACCINE WASTAGE RATE														

Apply the Multi-Dose Vial Policy (MDVP) to all the EPI centres	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Train/re-train the prefectural EPI coordinators in computerized vaccine management (DVD-MT)							X	X					DPEV	$43 658
Update the vaccine wastage reduction plan by taking the new vaccines into consideration						x							DPEV	
Disseminate the vaccine wastage reduction plan and the Multi-Dose Vial Policy (MDVP)						x	x	x	x	x	x	x	DPEV	$14 553
Organize regular supervisory sessions on supply management by health prefecture					x						x		DPEV, DRS, ECD	
Monitor vaccine wastage	x	x	x	x	x	x	x	x	x	x	x	x	DPEV, DRS, ECD	
G. IMMUNIZATION SAFETY														
Update the national injection safety plan						x							DPEV	
Update the national hospital waste management plan						x							DPEV, DSC	
Train health workers on injection safety and hospital waste management							x	x					DPEV	
Train health workers on the management of MPIs							X	x					DPEV	
H. EPI EQUIPMENT MAINTENANCE AND REHABILITATION														
Provide national cold room and generator maintenance	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	$43 658
Provide cold chain maintenance to the health prefecture bases	X	X	X	X	X	X	X	X	X	X	X	X	DPEV, Partners	$72 763
Train EPI workers during supervisions on basic refrigerator preventative maintenance and repair techniques						x						x	DPEV, DRS, ECD, Partners	
Contract with a private company for maintenance of large pieces of equipment at the national level					x	x							DPEV	$72 763
I. WASTE MANAGEMENT														
Disseminate standards on biomedical waste management	X	X	X	X	X	X	X	X	X	X	X	X	DPEV, Partners	$14 553
Train vaccinators in immunization waste management during supervisory sessions							X	X					DPEV	
J. COMMUNICATION TO PROMOTE THE EPI											X	X		
Update and validate the integrated communication plan						x							DCS	$14 553
Train local health educations on communication								x	x	x	x	x	DCS	$43 658

techniques														
Train media communicators on communications techniques on behalf of the EPI								x	x	x	x	x	DCS	$14 553
Train EPI workers on communication at all levels								X	X	X	X	X	DCS, DPEV	
Provide health prefectures/EPI centres with educational aids								X	X	X	X	X	DCS, DPEV	$34 926
Adapt information to promote the EPI for population consumption using the mass media and traditional channels of communication (theatre troupes, traditional dance groups)								X	X	X	X	X	DCS	$14 553
Monitor and evaluate social mobilization activities								X	X	X	X	X	DCS, DPEV	$14 553
Conduct advocacy with decision-makers (executive, legislative and decentralized officials) and opinion leaders in order to mobilize resources for the EPI and revitalize PHC bodies	X	X	X	X	X	X	X	X	X	X	X	X	DCS, DPEV	$14 553
Organize an African Immunization Week (AIW)				x									DCS, DPEV	
Document communication activities to promote the EPI (collection, analysis and dissemination)							X	X	X	X	X	X	DCS, DPEV	$14 553
K. POLIO ERADICATION														
Update microplans in targeted districts			x										DPEV	
Organize mass campaigns (polio NIDs and LIDs) in case of need				x	x	x							DPEV	$3 492 621
Develop AFP case surveillance plans at the district level			x			x			x			x	DPEV	
Conduct active AFP surveillance	x	x	x	x	x	x	x	x	x	x	x	x		$1 309 733
Monitor performance indicators of AFP surveillance	X	X	X	X	X	X	X	X	X	X	X	X	DPEV; DMPM	
Support the operations of the various polio committees (NPEC, NCC, containment)	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	$43 658
Support the operations of the polio laboratory at the Pasteur Institute of Bangui	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	$87 316
L. MNT ELIMINATION														
Conduct MNT risk analysis						X							DPEV	
Develop MNT surveillance plans at the district level			X			X			X				DPEV	
Conduct active surveillance	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Monitor performance indicators of MNT surveillance	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	

Organize supervision for health workers	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Raise awareness among health workers and midwives about proper hygiene during deliveries	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
M. CONTROL OF YELLOW FEVER														
Develop YF surveillance plans at the district level			X			X						X	DPEV	
Conduct active surveillance	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Monitor performance indicators of YF surveillance	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Organize immunization campaigns (response)						x							DPEV	$349 262
Organize supervision for health workers	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Monitor performance indicators of MNT surveillance	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Support the operations of the YF laboratory at the Pasteur Institute of Bangui with equipment and supplies	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
N. MEASLES CONTROL														
Develop measles surveillance plans at the district level			X			X			X			X	DPEV	
Conduct active surveillance	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Monitor performance indicators of measles surveillance	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Organize immunization campaigns (response)				X									DPEV	$1 891 836
Organize supervision for health workers	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Monitor performance indicators of measles surveillance	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Support the operations of the YF laboratory at the Pasteur Institute of Bangui with equipment and supplies	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	$23 284
O. CAMPAIGNS AGAINST HIB, PNEUMOCOCCAL, HEPATITIS B AND ROTAVIRUS INFECTIONS														$0
Set up a sentinel surveillance system					X	X	X	X	X	X	X	X	DPEV	$43 658
Monitor the indicators of surveillance performance					X	X	X	X	X	X	X	X	DPEV	
Provide sentinel sites with specimen collection kits, specimen transportation and diagnostics					X	X	X	X	X	X	X	X	DPEV	
Equip the laboratory with reagents and diagnostic equipment					X	X	X	X	X	X	X	X	DPEV	
P. INTEGRATED DISEASE SURVEILLANCE														

Develop an integrated preparation and outbreak response plan					X								DMPM	
Conduct integrated diseases surveillance and AEFI surveillance	X	X	X	X	X	X	X	X	X	X	X	X	DMPM	
Monitor performance indicators	X	X	X	X	X	X	X	X	X	X	X	X	DMPM	
Equip the laboratory with reagents and diagnostic equipment	X	X	X	X	X	X	X	X	X	X	X	X	DMPM	
Provide data collection materials at all levels	X	X	X	X	X	X	X	X	X	X	X	X	DMPM	
Strengthen and diversify the data transmission channels (including new information technologies) at all levels	X	X	X	X	X	X	X	X	X	X	X	X	DMPM	
Draft and publish a quarterly bulletin for feedback						X			X			X	DMPM	
Perform monitoring and evaluation of surveillance activities (supervision and coordination meetings at all levels)	X	X	X	X	X	X	X	X	X	X	X	X	DMPM	
Update the AEFI care guide in light of the IDP					X								DMPM	
Train health workers about AEFIs					x	x	X						DMPM	
Support the operations of the Epidemic and Emergency Management Committee (COGES)	X	X	X	X	X	X	X	X	X	X	X	X	DMPM	
Establish and equip a rapid intervention team to respond to outbreaks and emergency situations							X	X	X	X	X	X	DMPM	
Implement the 2005 IHR guidelines						X	X	X	X	X	X	X	DMPM	
Train stakeholders in the field on the 2005 IHRs						X	X						DMPM	
Raise awareness among the community about the 2005 IHRs						X	X	X	X	X	X	X	DMPM	
Q. PROGRAMME MANAGEMENT														
Expand EPI centres	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Equip the target health facilities of the health regions and districts with vehicle assets, computer equipment and incinerators			X			X			X			X	DPEV	
Provide monitoring & evaluation of activities	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Evaluate the management training needs of the EPI at all levels	X					x							DPEV	
Develop an EPI workforce plan	X												DPEV	
Lobby the Government to recruit qualified personnel	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Contribute to initial/refresher training of the members of PHC management bodies									X	X	X	X	DPEV	

Motivate personnel to attain a high level of efficiency at all levels	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Develop/adapt the data management tools				X	X								DPEV	
Provide EPI workers with data management tools	x	x	x	X	X	X	X	X	X	X	X	X	DPEV	$14 553
Provide monitoring & evaluation of EPI activities	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Provide the EPI Director with a supervisory vehicle												X	DPEV	$140 744
R. FINANCIAL SUSTAINABILITY														
Develop a simplified procedure for allocating appropriations in collaboration with the Ministry of Planning and Finance (prepayment)					X	X							DPEV	
Update the funding plan and submit it to the adjudication commission during development of the State budget					X	X							DPEV	
Apply the recommendations resulting from financial audits and reports							X	X	X	X	X	X	DPEV	
Solicit the involvement of the private sector and NGOs in immunization funding, from planning to the implementation of activities.	X	X	X	X	X	X	X	X	X	X	X	X	DPEV	
Lobby national officials and partners to mobilize resources for the EPI	X	X	X	X	X	X	X	X	X	X	X	X	DCS, DPEV	$14 553
TOTAL														$9 138 472

In the 2011-2015 Comprehensive Multi-Year Plan for the Expanded Programme on Immunization, the integration of child survival activities as part of routine immunizations and SIAs will continue as a way to maximize the chances of reducing mother and child mortality.

To this end, emphasis will be placed on coordinating the interventions that are part of the service packages to be integrated. Resources will be pooled to achieve economies of scale and provide an opportunity for inclusion to all target groups in all geographic regions of Central African Republic.

CONCLUSION

The current Comprehensive Multi-Year Plan (2011-2015 cMYP) is based on the 2006-2015 National Health Development Plan, which is an instrument for the implementation the National Health Policy (NHP). The NHP's goal is to improve the health status of Central African Republic's population. It will be implemented through five-year plans and annual action plans in such a way as to adapt to the political and socioeconomic context of the country.

Peace, national political and economic stability, political will at the highest levels of the State, development of a new, strong partnership, multisectoral collaboration, improvement of health sector funding, collaboration between the public and private sectors, effective involvement of civil society including the community, all represent some of the determining factors for the plan's implementation.

Accordingly, the Government of Central African Republic, aware of the serious nature of its population's health situation, commits itself to allocate the necessary resources, to undertake any measures needed for implementation of the plan and to ensure the EPI's financial sustainability. In the present context of economic and financial difficulties, the Government is counting on national and international solidarity to mobilize additional needed resources in order to achieve the fixed objectives, and consequently those of the Millennium Development Goals (MDGs).