REPUBLIC OF ANGOLA

Ministry of Health

Immunization Multi-Year Plan

2011 - 2015

Luanda, May 2011

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List of abbreviations

AD	Auto-DisableI Syringes
AFP	Acute Flaccid Paralysis
AFRO	Regional Office for Africa
AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Care
BCG	Bacillus Calmette-Guerrin
BPHS	Basic Package HealthServices
bOPV	Bivalent Oral Polio Vaccine
CDC	Centers for Disease Control
cMYP	Comprehensive Multi Year Plan
DTP	Diphtheria Pertussis and Tetanus
DRC	Democratic Republic of Congo
DVD-MT	District Vaccine and Data Management Tool
EPI	Expanded Program on Immunization
GAVI	Global Alliance for Vaccines and Immunizations
GBS	General Budget Support
GDP	Gross Domestic Product
GIVS	Global Immunization Vision and Strategies
HDI	Human Development Index
HepB	Hepatitis B
Hib	Haemophilus Influenza type b
ICC	Inter-Agency Co-ordination Committee
IDSR	Integrated Disease Surveillance and Response
MDG	Millennium Development Goals

MOH	Ministry of Health
mOPV	Monovalent Oral Polio vaccine
NEPAD	New Partnership for Africa's Development
NIDs	National Immunization days
NNT	Neonatal Tetanus
NGOs	Non-governmental Organization
OGE	General Global Budget
Penta-3	Pentavalent vaccine 3 doses
PW	Pregnant Women
RED	Reach Every District
SNIDs	Synchronized National Immunization Days
SWOT	Strengths, Weaknesses, Opportunities and Threats
tOPV	Trivalent Oral Polio Vaccine
TT	Tetanus Toxoid
UNICEF	United Nations Children's Fund
US	United States
USAID	United States Agency for International Develepement
USD	United States Dollars
YF	Yellow Fever
WHO	World Health Organization
WPV	Wild polio virus

EXECUTIVE SUMMARY

The Expanded Programme on Immunization (EPI) is an essential component of Primary Health Care and aims to reduce morbidity and mortality of vaccine-preventable diseases. The immunizations for its simplicity and high effectiveness are the lance tip of the Angolan National Health Plan 2009-2012 that will contribute to achieve the Millennium Development Goals with a target of reducing under 5 years mortality rate by two thirds.

The vaccinations are being delivered in an integrated manner with other interventions included into integrated package of maternal and child care services. The Ministry of Health aims to increase an sustained over 90% vaccinations coverage country-wide with all antigens, ensuring continuous access to increased fixed posts and reach unreached population through outreach and mobile services with high-quality vaccines of proven efficacy, with adequate storage and administered safely to target population.

The strategies suggested in this EPI Multi-year Plan to overcome the system barriers, have taken into account field-based lessons from program implementation in the past ten years,. in the specific context of Angola, and are targeting a rapid epidemiological impact, and create conditions for sustainability of activities that are relevant part of the process of revitalization of the municipal health services and contribute also to promoting community participation in other disease prevention.

Through a process of situation analysis the following were identified as priority areas of focus for the period 2011-2015 (1) human resource capacity building giving priority to local level; (2) increasing the cold chain storage capacity to storage all the planned vaccines and improve immunization waste disposal; (3) Increase community demand for immunization; (4) strengthening of integrated disease surveillance and response.

In order to ensure an effective and efficient management and a functioning Public Health Sector, the Government of Angola has in 2010 further decentralized the management of the health system financial management;

The expected results are: (1) Interruption of Poliovirus transmission in the Country (2) Reduction of measles mortality rate by 98%, (3) Achieve elimination of maternal and neonatal tetanus, (4) Reduction of morbidity and mortality from pneumonia and meningitis caused by *Streptococcus pneumonia and Haemophilus influenzae type b*, severe diarrhoeal disease caused by *Rotavirus*, as well as lowering the burden of other vaccine preventable diseases such as Tuberculosis, Hepatitis B, Diphtheria, Whooping cough and Yellow Fever diseases.

The Ministry of Health intends also to expand the target vaccination group beyond children under one year: (1) Covering the children under-five years of age w with basic vaccination schedule and booster doses of traditional vaccines, (b) Gradually introduce the new vaccines: Pneumo and Rotavirus to maximize the impact of immunizations on mortality reduction; (3) vaccination of children at school age with TT booster doses (4) Vaccination of specific groups at risk with appropriates vaccines.

The current document represents a five year comprehensive plan for immunization activities in the country. The plan highlights the national goals, objectives, and strategies derived from the programme

situation analysis. The plan has been developed within the context of the Global Immunization Vision and Strategies (GIVS) and aims to contribute towards the attainment of the Millennium Development Goals (MDG4 & 5).

cMYP Component USD	2010	2011	2012	2013	2014	2015	Total 2011 - 2015
	US$	US$	US$	US$	US$	US$	US$
Vaccine Supply and Logistics	$12.926.571	$13.321.950	$26.658.895	$34.535.098	$32.823.719	$32.374.857	$139.714.518
Service Delivery	$2.702.021	$3.066.282	$3.261.439	$3.527.641	$3.870.153	$4.197.015	$17.922.530
Advocacy and Communication	$106.300	$404.250	$446.513	$358.864	$218.791	$229.731	$1.658.148
Monitoring and Disease Surveil-lance	$1.200.800	$1.302.718	$1.391.133	$1.485.687	$1.586.812	$1.694.976	$7.461.326
Programme Man-agement	$691.040	$1.221.414	$1.047.086	$1.061.499	$956.224	$1.120.364	$5.406.588
Supplemental Immunization Ac-tivities	$14.471.126	$20.752.853	$13.319.932	$23.520.927	$15.132.868	$26.805.705	$99.532.285
Shared Health Systems Costs	$9.871.139	$11.002.493	$12.252.689	$13.606.557	$15.108.787	$16.681.411	$68.651.938
	$41.968.997	**$51.071.960**	**$58.377.687**	**$78.096.272**	**$69.697.354**	**$83.104.059**	**$340.347.331**

1. INTRODUCTION

1.1. GEOGRAPHIC PROFILE

The Republic of Angola is one of the largest countries on the African continent, with a land area of 1,246,700 km2. Situated on the west coast of southern Africa, is bordered on the west by the Republic of Congo, the Northeast and East by Democratic Republic of Congo and Republic of Zambia by South East and South by the Republic of Namibia. The land border is 4837 km. It is bordered to the by the Atlantic Ocean, the length of the shipping line is about 1,236 km.

The geomorphologic characteristics of Angola are a massive upland bordered by a strip of lowlands: The central area of the country is characterized by mountains and plateaus. Angola's climate is tropical in the north, sub tropical in the south and temperate plateau zones. Two seasons, are observed one of them a largest rainfall and other cold and dry also called mist.

Angola is a multicultural Country the major ethnic groups are: Ovimbundu, Mbundu, Bakongo, Lunda-Chokwe, Nyaneka-Nkhumbi, Obambi, Ganguellas, Xindong, Herero and Khoisan. The official language is Portuguese, the languages most spoken are Portuguese, Umbundo, Kimbundu, Kikongo, Chokwe.

1.2. ADMINISTRATIVE DIVISION

The country is divided into 18 provinces, 164 municipalities and 532 communes. The communes are subdivided into urban neighbourhoods, and in rural areas in villages.

1.3. DEMOGRAPHY

The last national census of population was conducted in 1970, when the country had 5,673,000 inhabitants with a density of 4.6 inhabitants per km2. The Country population estimates for 2011 varies in a range from 18.0 to 20.9 million. The age pyramid of the Angolan population is characteristic of a predominance of younger population, population under 18 years constitutes 56% and the population over 65 years is only 2% of the total population. The annual population growth rate is very high, estimated at 2.8%. The proportion of children under 1 year old is 4.3%, the children under 5 years 20%, the people under 15 years are estimated in 47% of the population and women of childbearing age 21% of the total population.

After the signature of the Luena Peace Agreement in 2002, people who were displaced in the capitals of the provinces and neighbouring countries, returned to their home areas. Currently, it is estimated that about 60% of the population lives in urban areas or peri-urban areas

Due to limitations of population estimates of the country, the Ministry of Health and particularly the EPI adopted, from 2004, estimates based on the Measles attack campaign and Polio National Immuni-

zation Days, which took place in 2003. These estimates were adjusted using the results of routine vaccination and immunization days held every year. The populations projections for the period 2011 - 2015 and the distribution of the estimated population for 2011 by province can be see in the following tables:

Table 1: Projected population by year and age group. Angola, 2010-2015

Age Group	2010	2011	2012	2013	2014	2015
Total Population	20.299.592	20.867.981	21.452.284	22.052.948	22.670.431	23.305.203
Births (5%)	1.014.980	1.043.399	1. 072.514	1.102.547	1. 133. 522	1.165. 260
Surviving infants (4,35%) *	862.733	907.757	933.174	959.303	986.164	1.013.776
Children 9-59 months (20%)	4.059.918	4.173.596	4.290.457	4.410.590	4.534.086	4.661.041
Children under 15 years (47%)	9.540.808	9.807.951	10.082.573	10.364.886	10.655.102	10.953.445
Pregnant woman (5%)	1.014.980	1.043.399	1.072.614	1.102.647	1.133.522	1.165.260
Women in child bearing age (21%)	4.262.914	4382276	4.504.980	4.631.119	4.760.790	4.894.093

Source: MoH EPI 2011

Table 2: Population distribution by province. Angola, 2011

PROVÍNCE	Total Population	% of Total	Survivors (4,35%)	Pregnant (5%)	< 15 years
BENGO	268.066	1,3	11.661	13.403	125.991
BENGUELA	3.332.396	16,0	144.959	166.620	1.566.226
BIE	1.407.030	6,7	61.206	70.351	661.304
CABINDA	547.695	2,6	23.825	27.385	257.417
CUNENE	477.913	2,3	20.789	23.896	224.619
HUAMBO	1.447.803	6,9	62.979	72.390	680.468
HUILA	1.776.222	8,5	77.266	88.811	834.824
KUANDO KUBANGO	432.235	2,1	18.802	21.612	203.151
KWANZA NORTE	419.390	2,0	18.243	20.969	197.113
KWANZA SUL	1.109.833	5,3	48.278	55.492	521.621
LUANDA	5.545.294	26,6	241.220	277.265	2.606.288
LUNDA NORTE	675.391	3,2	29.380	33.770	317.434
LUNDA SUL	313.585	1,5	13.641	15.679	147.385
MALANGE	618.561	3,0	26.907	30.928	290.724
MOXICO	644.408	3,1	28.032	32.220	302.872
NAMIBE	232.897	1,1	10.131	11.645	109.462
UIGE	1.346.296	6,5	58.564	67.315	632.759
ZAIRE	272.966	1,3	11.874	13.648	128.294
ANGOLA	**20.867.981**	**100**	**907.757**	**1.043.399**	**9.807.951**

Source: MoH EPI 2011

1.4. NATIONAL HEALTH SYSTEM

The National Health Service is organized into three levels of care: (a) level of primary health care consists of health posts and health centres, (b) secondary level hospital network consisting of multi-purpose municipal and provincial hospitals, (c) level tertiary hospitals that comprise the differentiated services. Despite the definition of care levels in general there is no effective system of

referral and inter-relationships between functional levels.

The management levels of the National Health Service are four: (a) The central core structure consisting of normative Ministry of Health, (b) The provincial level of operational and technical support to the MoH and technical dependency and administration of the provincial government (c) municipal level of an executive nature, consisting of the municipal health team, dependent on the municipal administration, (d) composed by local health units dependent on the municipal administration.

The public health services is scarce is unevenly distributed, it is estimated that about 60-70% of the population have physical access to basic health services; there are still limitations in the structure, distribution and quality of basic health services. Profit private entities are concentrated in cities and have no relevant coverage. The non-profit entities dependent on NGOs and churches are also scarce

Table 3 Angola: Evolution Network Service of the National Health 2003 2009

Health Facilities	2003	2004	2005	2006	2007	2008	2009
Central Hospital	9	9	9	9	9	9	9
General Hospital	33	33	33	33	33	45	45
Municipal Hospital	52	116	116	132	132	146	155
Health Centre	162	272	272	313	316	359	359
Health Post	696	1026	1026	1468	1472	1841	1841
Total	952	1456	1456	1955	1962	2400	2409

Source: - Gabinete de Estudos, Planeamento e Estatística.2010.

Table 4 Angola: Staff of the National Public Health System 2009

Province	Doctors		Nurses		Technicians	
	Nº	Rate/ 1.000 inhab.	Nº	Rate/.000 inhab	Nº	Rate/1.000 inhab
Bengo	87	0,33	954	3,66	99	0,38
Benguela	184	0,06	2809	0,87	391	0,12
Bié	106	0,08	1468	1,07	80	0,06
Cabinda	126	0,24	1256	2,36	278	0,52
Cunene	103	0,22	922	1,98	73	0,16
Huambo	163	0,12	1796	1,28	343	0,24
Huila	187	0,11	2052	1,19	495	0,29
Kuando Kubango	39	0,09	642	1,53	65	0,15
Kuanza Norte	115	0,28	1051	2,58	88	0,22
Kuanza Sul	182	0,17	1026	0,95	131	0,12
Luanda	982	0,18	8.750	1,62	2.590	0,48
Lunda Norte	94	0,14	839	1,28	89	0,14
Lunda Sul	87	0,29	753	2,47	67	0,22
Malange	147	0,24	1146	1,90	82	0,14
Moxico	81	0,13	1233	1,97	93	0,15
Namibe	103	0,45	941	4,15	257	1,13
Uíge	94	0,07	1222	0,93	132	0,10
Zaire	76	0,29	732	2,76	82	0,31
TOTAL	**2956**	**0,15**	**29.592**	**1,46**	**5.435**	**0,27**

Source: Gabinete do Plano MINSA. 2005

1.5 HEALTH SYSTEM FINANCING

According to the Law 21-B/92, funding for the National Health Service should be provided by the state through general budget support (GBS) supplemented with co-payments of clients and international cooperation for the health sector.

The following table demonstrates that the proportion of public expenditure in the health sector since the year 2002 to 2009 remained at about 4-5% and it was increased up to8.4% in 2009. Moreover about 50% of public sector spending on health is followed to the payment of personal expenses for purchase of medicines equipment, other goods and services.

.Table. Angola: Development of National Budget and Health 2002-2009 (Million AKZ)

Indicator	2002	2003	2004	2005	2006	2007	2008	2009
Total General State Budget (GSB)	197.267	358.888	665.348	956.230	2.176.922	2.503.887	2.544.769	3.176.127
Health Sector Budget	9.022	20.878	37.845	47.495	96.172	92.150	169.919	266.296
% Of the health sector budget in relation to the General State Budget	4,6%	5,8%	5,7%	5,0%	4,4%	3,7%	6,7%	8,4%

Source: Gabinete do Ministério das Finanças 2010.Nota: 1USD = 95 AKz.

The financing of vaccines and vaccination materials is guaranteed with funds from the State Budget (OGE), supplemented with funds from external cooperation. The cost of traditional vaccines and vaccination of their materials, from 2007 to the present are covered entirely with GSB funds The Pentavalent vaccine was financed with funds from GAVI 2010, from 2011 until2015 will be co-financed with increasing GSB funds supplemented with GAVI funds. Is expected that from 2015 the Pentavalent vaccine and are funded entirely with Pneumo funds from (GSB)

2. EXPANDED PROGRAM ON IMMUNIZATION OF ANGOLA

2.1. HISTORICAL BACKGROUND

The Expanded Programme on Immunization (EPI) began in Angola in 1979, aimed to vaccinate children under one year old against Poliomyelitis, Diphtheria, Tetanus, Whooping cough, Measles, tuberculosis and tetanus to pregnant women.

The activities started in a small network of public health services with support of mobile teams who travelled to communities. The initial goal was to ensure the vaccination of 40% of the target population. Achieving this goal proved difficult, mainly due to the war factor that difficult for more than two decades the normal functioning of the health sector.

At the end of 2003, one year after the peace agreement, were selected and prioritized 59 most populous municipalities of the country, who had trained staff in vaccination and cold chain. In these municipalities that leave around 75% of the target population of the country, began implementing the "Reach Every District Strategy (RED) to accelerate the increasing of routine immunization coverage. To implement the strategy counted with the financial support of GAVI and other partners.

In the context of the Global Initiative to Eradicate Polio, Angola has conducted over 45 National Immunization Days of supplementary immunization against polio until 2010. These campaigns had a frequency from 2 to 6 rounds per year. Since the year 1999 was also implemented Local Immunization Days according to the epidemiological situation.

To guide the activities of polio eradication was developed epidemiological surveillance of Acute Flaccid Paralysis (AFP). Epidemiological surveillance of AFP was initiated in 1994, following a study done in collaboration with WHO / AFRO, the Center for Disease Control and Prevention of the U.S. (CDC) and the Angolan Armed Forces with support of the German Embassy in Luanda.

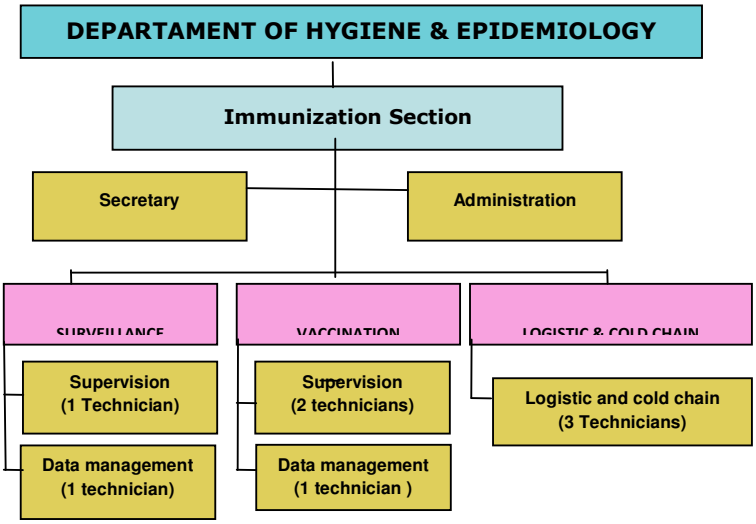
With the great polio epidemic in 1999, was strengthened epidemiological surveillance system at national level. This system is responsible for reporting and investigating of potentially epidemic diseases.

For the control of measles in the first half of 2003, was conducted an immunization countrywide campaign against measles called "Attack Campaign" targeting children from 9 months to under 15 years of age. In 2006 it was held the "1st Follow up Campaign" in 2009 was implemented the "2nd Follow up Campaign against Measles." Both follow-up campaigns were directed to children under 5 years old.

2.2. THE EPI STRUCTURE

Within the hierarchical structure of the National Directorate of Public Health Immunization Section depends on the Department of Hygiene and Epidemiology. It has the function of management and program evaluation, development of standards and technical procedures at national level, involves three areas: (a) Area Surveillance (b) Area of vaccination, (c) Area of logistics and cold chain

Figure 1.Organogram of EPI, Angola 2010



2.3. HUMAN RESOURCES

The specific staff of the Central level Immunization Section was comprised by Head of Section, two national vaccination supervisors, national surveillance technician, two data managers, three logisticians and one accountant for administrative area. For general services are present one secretary and one clerk. Given the increased responsibility of the Immunization Section the MoH is going to assign to the technical team two more medical doctors and 2 technicians from June 2011.

Each of the 18 provinces has 3 provincial technicians (vaccination, surveillance and cold chain/logistic) and at the municipal level has one EPI supervisor and one surveillance technician. At Health facilities level (hospitals and health centres) there are in general one or two technicians responsible specifically for immunization. In every health facility are nominated one or two clinicians as focal points for surveillance.

2.4. THE EPI POLICY

In 2007, Angola developed this National Health Policy, strengthening a PHC approach for its health care delivery system. The goal of the National Health Policy is to increase the proportion of Angolans with access to adequate and affordable health care and establish a health care support system adaptable to local needs and technology.

This policy was established within the context of the health strategy of the New Partnership for Africa's Development (NEPAD) and the MDGs. Therefore the National Health Policy's overall objective is to strengthen the national health system such that it is able to provide efficient, effective, accessible and affordable health services that will improve the health status of Angolans through the achievement of the health-related MDGs. This policy lists several national health interventions that are supported by additional other policies. The policy sets the momentum for Implementation of Health services in the Country in ensuring the survival and healthy growth and development of the Angolan child, including newborns, under-five and school age children. Hence, it is aligned with the current cMYP.

The Ministry of Health of Angola has the responsibility to prevent morbidity and mortality from vaccine preventable diseases offering all vaccines of national schedule of EPI through fixed, out-reach and mobile teams with high quality vaccines of proven efficacy, adequately stored and delivered safely to the target groups identified by EPI.

The country purchases vaccines only from pre-qualified by WHO laboratories through private company. Since 1999 are being used auto disabled syringes for the administration of injectable vaccines, disposable syringes for reconstitution of lyophilized vaccines and for disposal of used syringes safety boxes. The final disposal of syringes is accomplished by open burning and burial. Only in Luanda there is a private system of collection and incineration of medical waste including vaccination syringes. In 2007 was introduced the notification of adverse events following immunization at the national level the system still does not work en all its components.

In the period 2011-2015, the Ministry of Health aims to introduce Pneumo and Rotavirus vaccine to maximize the benefits of immunizations in the population based on analysis of potential benefits associated costs with the introduction and long-term financial sustainability.

The MoH consider vaccines as a public good and therefore are provided free of cost to the targeted population. The financing of vaccines and vaccination materials are guaranteed with the General State Budget (GSB) funds, supplemented with external cooperation resources.

The funding of traditional vaccines and vaccination materials are totally covered by GSB funds since 2007. The Pentavalent vaccine was financed with funds from GAVI until 2010, from 2011 to 2015 will be co-financed with GAVI and after 2015 will be financed entirely with government funds.

The introduction of new vaccines are critical to accelerate the reduction of the inacceptable Angolan high rates of children mortality and requires external support by co-financing the costs of vaccines and supplies with donors interested to support the program in the period of present Plan and after is expected to be covered entirely by Angolan GSB.

The MoH will give the information to secure the awareness of the population and facilitate the access to immunization services in order to complete the basic immunization schedule before the first anniversary of Angolan children, In order to extend the benefits of vaccines to missed children, MoH will also cover the children under-fives with basic scheme and booster doses of traditional vaccines;

Enlarging the target group is another priority of the MoH, in this order to systematize the administration of TT to school children (first primary level).

2.5. VACCINATION SCHEDULE IN ANGOLA

The current national schedule for routine vaccination in Angola, is an adaptation of the schedule recommended by WHO, includes nine vaccines for children under 1 year of age: BCG, Polio, Pentavalent (DTP-Hepatitis B-Haemophilus influenza b), Measles and Yellow Fever, and Tetanus Toxoid for women of childbearing age.

In 2012 it is planned the introduction the vaccine against *Streptococcus pneumonia* and in 2013 the vaccine against *Rotavirus* following the national schedule for other vaccines at 2, 4 and 6 months of age for Pneumo vaccine and at 2 and 4 months. The rotavirus vaccine should not be given after the 8 months of age. In the tables below; we can observe the national vaccination calendar of Angola.

Table 6. National immunization Schedule for Children. Angola, 2006 -2015

Age	2006-2011	2012 -2015
At birth	BCG Pólio 0	BCG Pólio 0
2 months	Pentavalente1 (DTP+Hep B + Hib) Pólio 1	Pentavalente1 (DTP+Hep B + Hib) Pólio 1 Pneumo-1(*) Rota-1 (**)
4 months	Pentavalente2 (DTP+Hep B + Hib) Pólio 2	Pentavalente 2 (DTP+Hep B + Hib) Pólio 2 Pneumo-2(*) Rota-2 (**)
6 months	Pentavalente3 (DTP+Hep B + Hib) Pólio 3 Vitamin A-1	Pentavalente3 (DTP+Hep B + Hib) Pólio 3 Pneumo-3(*) Vitamin A-1
9 months	Yellow Fever Measles Vitamin A-2	Yellow Fever Measles Vitamin A-2

(*) To be introduced nationally in 2012
(**) To be introduced nationally in 2013

Table 7. National Immunization schedule for Women of childbearing age (15 to 49 years) Angola. 2006-2015

Dose	Schedule	Protection
TT1	At the first contact with Health facility	-
TT2	4 weeks after TT1	1-3- years
TT3	6 months after a TT2	5 years
TT4	1 year after TT3	10 years
TT5	1 year after TT4	Permanent protection

3. SITUATION ANALYSIS

3.1. THE SOCIO-ECONOMIC PROFILE

Despite progress in the economic field in last years, Angola is among the least developed countries in Africa. According to the Human Development Index (HDI), the country is located in 146th place in a ranking of 169 countries. Poverty incidence is high, affecting some 45% of the total population.

The strategy to reduce poverty emphasizes the consolidation of the peace process, so it is necessary to ensure the functioning of state administration throughout the national territory, extending basic health services and education to the entire population, especially the poorest, rehabilitate the economic infrastructure base and promote a stable economic and social environment that constitutes the basis for the rehabilitation of national economy and to promote a process of comprehensive and sustainable development.

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Before the global crisis, Angolan economy was one of the fastest growing economies in the world. The slump in oil prices that began in late 2008 led to a considerable deterioration in the macroeconomic situation during the first half of 2009. The Government has faced an unfavourable external account imbalance with the fall in revenue by implementing deep fiscal tightening measures to cut spending and control the deficit.

In 2009 the collapse of oil prices has led the country to a negative GDP growth of 0.6%. However, due to the impact of high oil prices in 2010, the Angolan economy has recovered substantially, with GDP growth estimated at 7.4%. Inflation in 2009 remained high at 14%, and an estimated 15% for 2010. The Angolan economy is heavily dependent on oil revenues. However, the non-oil sector, which had a growth close to 10% in 2010, has been growing faster than the oil sector in the third year running. This trend is encouraging for the country's most pressing issues: employment and economic diversification.

Table 8 Angola: Evolution of Macroeconomic Indicators. 2008-2010

Indicators	2008	2009	2010	2011
Real GDP Growth %	13.2	-0.6	7.4	7.9
CPI inflation	13.2	14.0	15.0	9.9
Budget balance % GDP	8.8	-7.7	-3.9	-1.7
Current accounts % GPD	7.5	-3.8	2.6	3.0

Source: African Economic Outlook. 2010

After the civil war ended on 2002, the government gave high priority to re-construction and infrastructure vial, health, sport and education development:, taking place having been achieved important progress in geographical access of populations to social services.

Education is a key element for human development, increasing the opportunities of individuals in society. Not yet the progress achieved the enrolment rate in primary school was only 58% in males and 59% in females. The level of enrolment in secondary school is much smaller 19% in boys and only 16% in women. According to a recent national survey of households (2008), the level of illiteracy was estimated in 16& in males and 37% in females of women 15-24 years of age. In addition to limited access to education, teaching quality is low and the dropout rates are high in the public education.

3.2. HEALTH PROFILE

Population health status is an important factor for welfare, human development and economic growth. Angola made substantial progress in the post civil war has improved health indicators, however they are still considered among the lowest in sub-Saharan Africa.

The rates of infant and maternal mortality are among the highest in the world. The main direct causes of mortality are communicable disease and malnutrition. Malaria, Diarrheal Diseases and acute respiratory infections, measles tetanus and perinatal diseases are major causes of mortality of children under 5 years. Malaria, Tuberculosis and AIDS are relevant causes of preventable mortality in adults. The car crash accident-are a major cause of hospitalization and mortality.

Table 9 Angola: Health and Demographic Indicators 2008

Indicator	Rate
Annual growth rate of population	2,80%
Crude birth rate	43% x 1.000
Overall crude mortality rate	17% x 1.000
Total Fertility Rate	5,8 children / women
Infant mortality rate (*)	130 x 1.000
Mortality rate of children under 5 years (*)	220 x 1.000
Rate of chronic malnutrition (moderate and severe)	16%
Rate of acute malnutrition (moderate and severe)	8%
Maternal Mortality Rate	600 x 100.000
Life expectancy at birth	47 years

Source: Instituto Nacional de estatística
(*) Global Helth statistics. WHO, 2010

3.3. SURVEILLANCE AND ACCELERETED DISEASE CONTROL

3.3.1. EPIDEMIOLOGICAL SURVEILLANCE

Epidemiological surveillance of vaccine preventable diseases will be held in the context of integrated disease surveillance and response (IDSR). Central level receives weekly notifications on potentially epidemic diseases by telephone from the local/provincial level.

The reports of the all targeted diseases for mandatory notification are received monthly at central level.

Complementarily to IDSR, EPI conducts case-based surveillance for some vaccine-preventable diseases as being: Polio, Measles, Tetanus and Yellow Fever. The case-based surveillance is the epidemiologic investigation of each case of Polio (AFP), Measles and Yellow Fever and collects samples for Laboratory confirmation.

For surveillance of vaccine preventable pathogens like rotavirus be, Streptococcus pneumonia and Haemophilus influenza type b, MoH is in the process of establishing a surveillance system through sentinel sites. Currently only the Paediatric Hospital of Luanda is conducting laboratory research of these agents.

In every province there are technicians in charge of surveillance and WHO surveillance focal points

For the surveillance of poliomyelitis, the MoH has established surveillance of Acute Flaccid Paralysis (AFP) that takes place primarily through the strategy of active surveillance in health facilities and community.

To implement this strategy the health units were classified by priority level, the frequency of field visits fit prioritization. During the visits of active surveillance of AFP cases besides looking up cases of measles, tetanus, diphtheria, hemorrhagic fever and other diseases potentially epidemic. In the following table you can see the evolution of the indicators of AFP surveillance.

Table 10Performance Indicators of AFP surveillance. Angola, 2007-2011

Source: MoH EPI

The table above shows that the national indicators of AFP surveillance are satisfactorily in general despite of few gaps in some provinces and municipalities.

The measles surveillance is carried out through the reporting and investigation of suspected cases (eruptive febrile syndrome). From the first 1 to 5 reported cases in each district is collected blood samples for diagnostic confirmation, subsequent cases are classified by the epidemiological link. The National Health Laboratory tests the samples. The feedback is held generally within 1 week.

Indicators	Target	2007	2008	2009	2010
Number of cases of Wild Poliovirus	0	9	29	33	34
AFP non Polio rate	>=2	3	3.4	3.1	3.8
Timely collected samples	>=80%	91%	93%	92%	85%
Investigation in <2 days	>=80%	94%	92%	94%	93%
Arrival of the samples to the laboratory <7 days	>=80%	22%	14%	10%	9%
Samples in good condition	>=90%	100%	99%	99%	94%
Isolation of enterovirus non Polio	>=10%	21%	12%	13%	15%
Laboratory results received> 28 days	>=80%	92%	98%	98%	91%

See below the confirmed outbreaks of measles reported in 2010.

Table 11 confirmed measles cases by provinces and municipalities. Angola, 2010

Province	Municipalities	IgM+ Cases	Epidemiological link cases	Total cases
Benguela	Benguela, Caimbambo	8	10	18
Bié	Andulo	3	0	3
Cunene	Cuanhama,Ombadja	7	0	7
Huila	Lubango, Matala	7	1	8
Kwanza Sul	Cela	6	0	6
Luanda	Kilamba Kiax, Viana	16	1	17
Lunda Norte	Cambulo, c. Camulemba, Caungula, Cuango,Lucapa	18	0	18
Lunda Sul	Cacolo,Dala, Muconda, Saurimo	25	1.063	1.088
Malange	Massango	5	0	5
Moxico	Moxico	15	0	20
Total		110	**1.075**	**1.190**

Source: MoH EPI

Rotavirus is an important cause of severe diarrhoea worldwide, in Angola, according to information collected at the Paediatric Hospital of Luanda in about a third of cases of severe acute diarrhoea investigated was found Rotavirus antigen.

During the period May 2009 to December 2010 a study was conducted in the Paediatric Hospital of Luanda by collecting stool samples of children under 5 years who attended the emergency service of this hospital for acute diarrhoea, the results of laboratory can be seen in the following table:

Table. 12 Cases of severe diarrhoea & detection of Rotavirus Antigen
Paediatric Hospital of Luanda in May 2009 - December 2010

Age group	Nº Diarrhoea cases	Nº Ag. Rotavírus	Percentage
0-1 month	4	1	25%
2-11months	318	110	35%
12-59 months	141	38	27%
Total	463	149	32%

Source: Paediatric Hospital of Luanda. Ismael Rodrigues, Cesar Freitas e Ana Paula. 2010

The result of the previous table shows that the groups of children 2-11 months of age are most affected by Rotavirus. In the same investigation was confirmed rotavirus circulation throughout the year.

The available information on Streptococcus pneumonia and Haemophilus influenzae type b responsible for severe invasive disease such as pneumonia and meningitis that is currently preventable diseases, coming from the Paediatric Hospital of Luanda that since 2002 until the present collect the continuous manner cerebrospinal fluid samples from patients with meningitis.

Table 13 Cases of paediatric bacterial meningitis. Luanda Paediatric Hospital. 2006-2010

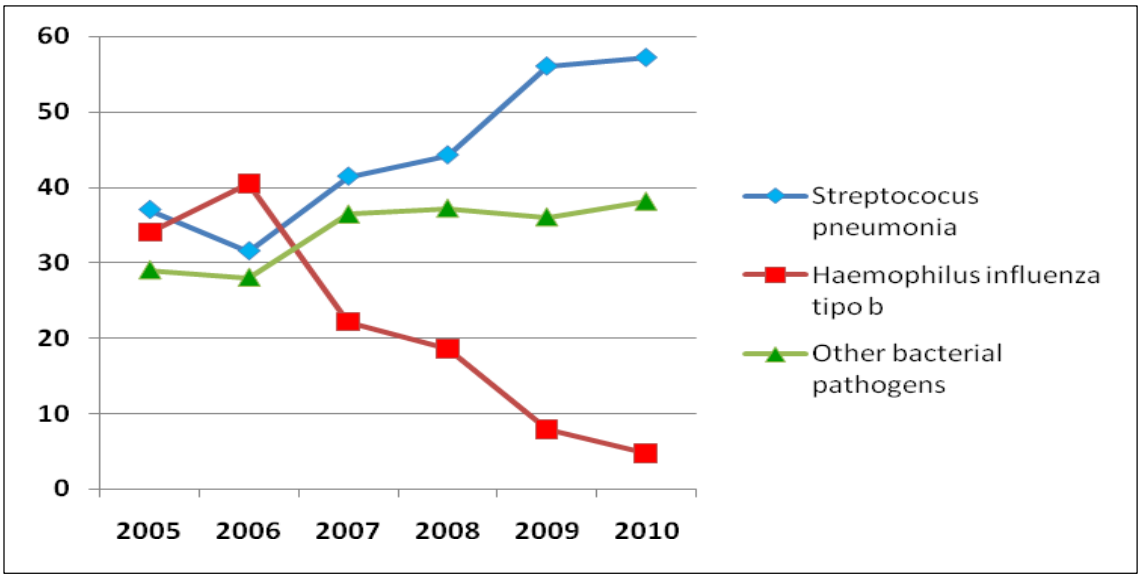
Pathogenic agent isolated	**2005**		**2006**		**2007**		**2008**		**2009**		**2010**	
	Cases	**%**	**Cases**	**%**	**Cases**	**%**	**Cases**	**%**	**Cases**	**%**	**Cases**	**%**
Streptococus pneumonia	43	37	134	32	140	41	50	44	42	56	12	57
Haemophilus influenza type b	39	34	172	40	75	22	21	19	6	8	1	5
Other pathogens	33	29	119	28	123	36	42	37	27	36	8	38
Total	**115**	**100**	**425**	**100**	**338**	**100**	**113**	**100**	**75**	**100**	**21**	**100**

Source: Paediatric Hospital of Luanda lab database

Table and graph No. 16 show the cases of paediatric bacterial meningitis with positive collection of bacterial pathogens in samples of cerebrospinal fluid in the period 2005 to 2010. One can observe a dramatic and sustained reduction in the proportion of cases of meningitis attributable to Haemophilus influenzae type b of about 40% in 2006 (year of introduction of Pentavalent vaccine in Angola) to 5% in 2010. On the other hand it is possible to infer the same impact in other invasive diseases like pneumonia caused by Hib, given the high effectiveness of the vaccine (Hib component of the Pentavalent vaccine).

For the pathogen Streptococcus pneumonia, note that it is the primary causative agent of paediatric bacterial meningitis. Currently there are effective and safe vaccines for the strains of the bacteria most frequently cause pneumonia and other invasive diseases.

Figure 2. Impact of the Introduction of Pentavalent vaccine (DTP-HepB-Hib) on the proportion of paediatric bacterial Meningitis. Paediatric Hospital of Luanda. 2006-2010



Source: Paediatric Hospital of Luanda lab database

The children under 5 years old mortality rate is considered as the global index of health status and welfare of children, this rate in Angola was estimated at 220/100.000 l.b. one of the highest in the world. In Angola a few diseases, including malaria, acute respiratory infections, acute diarrheal diseases, measles and neonatal tetanus, are directly responsible for about 60% of deaths in children under 5 years.

Several studies globally and in Africa show that pneumonia is responsible for about 15-20% of deaths occurring among children under 5 years. Streptococcus pneumonia, Haemophilus influenza type b and Sincitial Respiratory viruses are the major pathogens associated with pneumonia of children.

According to data from the Luanda Paediatric Hospital (2002-2010), the main agents of paediatric bacterial meningitis were Streptococcus pneumonia and Haemophilus influenza type b, observing a significant reduction of cases of Hib from 2006 when was introduced Pentavalent vaccine in Angola

Rotavirus is the main cause of severe diarrhoea in the developing countries. Studies conducted in the Paediatric Hospital of Luanda in the years 2009 and 2010 show the isolation of rotavirus in 25% of severe diarrhoea cases in children under 5 years who attended the emergency services. The isolation of Rotavirus in stool samples of diarrhoea cases are observed throughout the year, with a slight increment the months of May and June.

The available information in the MoH on morbidity due to vaccine preventable diseases is very low:

Table 14 Morbidity burden of vaccine preventable diseases. Angola, 2009-2010

Disease	Number of cases	
	2009	2010
Acute respiratory infection <5 years	209.937	415.528
Hib meningitis (% of samples from cases of bacterial meningitis) (*)	8%	5%
Meningitis Streptocosus Pneumonia (% of samples from cases of bacterial meningitis) (**)	56%	57%
Diarrhoea <5 years	255.423	244.526
Rotavirus Diarrhoea (% cases with samples H. Luanda Paediatric) (***)	30%	32%
Tuberculosis all ages	22,488	21,145
Diphtheria	0	0
Whooping cough	1.127	2,539
Poliomyelitis	33	34
Measles cases confirmed	123	1,19
Neonatal Tetanus	66	13
Yellow Fever	0	0
Seroprevalence of Hepatitis B (sample of pregnant women in ANC clinics) ****	79,6	

Source: Data Processing Center. Department of Epidemiology, MoH
(*) 230 samples in 2009 , 185 samples in 2010. (**) 96 samples in 2009, 112 samples in 2010.
(***) 513 samples in 2009. 715 samples in 2010
(****) Fatima Valente et al, Seroprevalence in Adults, Luanda 2009

To contribute to the rapid reduction of these major causes of morbidity and mortality of children under 5 years, currently are in use in Angola a set of highly effective and safe vaccines namely: measles and tetanus vaccines that prevent that diseases , vaccine hib that prevent infections caused by Haemophilus influenzae type b.

To prevent pneumonia caused by Streptococcus pneumonia and diarrhoea caused by Rotavirus the country aims to introduce countrywide Rota and Pneumo vaccines that was recommended by WHO expert committee because was proved effectiveness in many Countries of the world including some African countries.

Other vaccines against Tuberculosis (BCG), Pertussis, diphtheria, polio, hepatitis B and yellow fever are part of the national immunization schedule an contribute to prevent these diseases.

3.3.2. MEASLES EPIDEMIOLOGICAL PROFILE

Measles in Angola is an endemic disease with periodic epidemic picks that mainly affects children under 5 years old, remaining as important cause of morbidity and mortality of children under 5 years. Before the national catch up vaccination campaign took place in 2003, measles was considered hyper-endemic in Angola with epidemic peaks every 2-3 years with about 6,000 to 10,000 cases yearly reported during the campaign were vaccinated around 96% of children between 9 months to under 15 years of age.

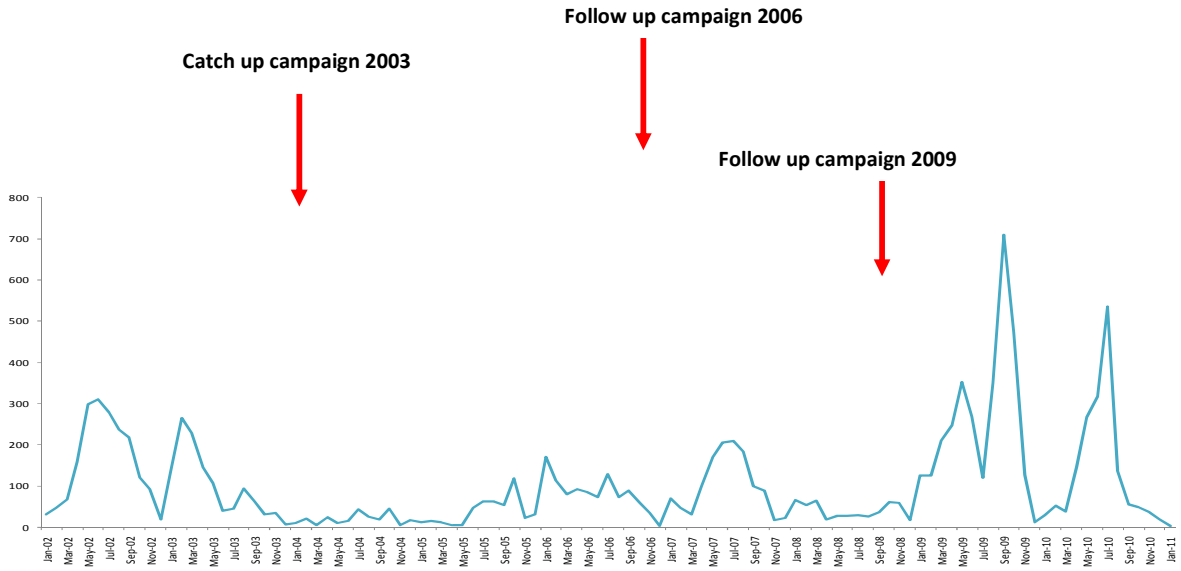
From November 2003 to June 2006 there was an accumulation of susceptible, because the low routine immunization coverage causing outbreaks in several provinces of the country among them Zaire, Cabinda, Kwanza Sul and Lunda Sul

During July and August 2006 was held the 1st national follow up campaign targeted children 9 months to under 5 years of age, reaching the national coverage near to 100% of the planned target, however there were less than 95% coverage en many municipalities of the country. After the campaign occurred outbreaks affecting mainly the provinces of Huambo, Bie and Kuando Kubango.

From June to July 2009, a 2nd follow up campaign was implemented; the target group was also children from 9 months to under 5 years old. The administrative coverage achieved at national level was

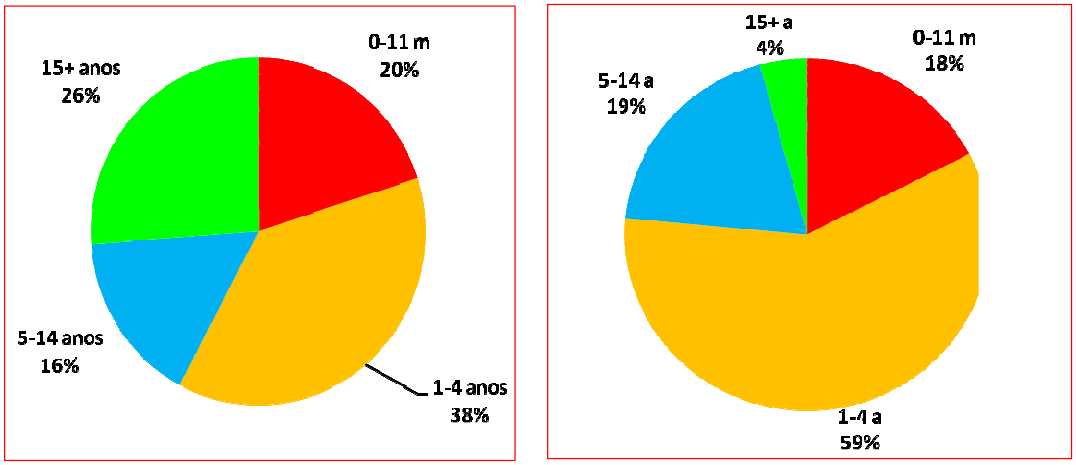
101%, but 67 of 164 municipalities (40%) achieved coverage below 95%. The sub-optimal campaign and the insufficient routine immunization coverage led to rapid accumulation of susceptible that causes numerous outbreaks.

Figure 3
Measles NIDS in Angola, 2003-2009



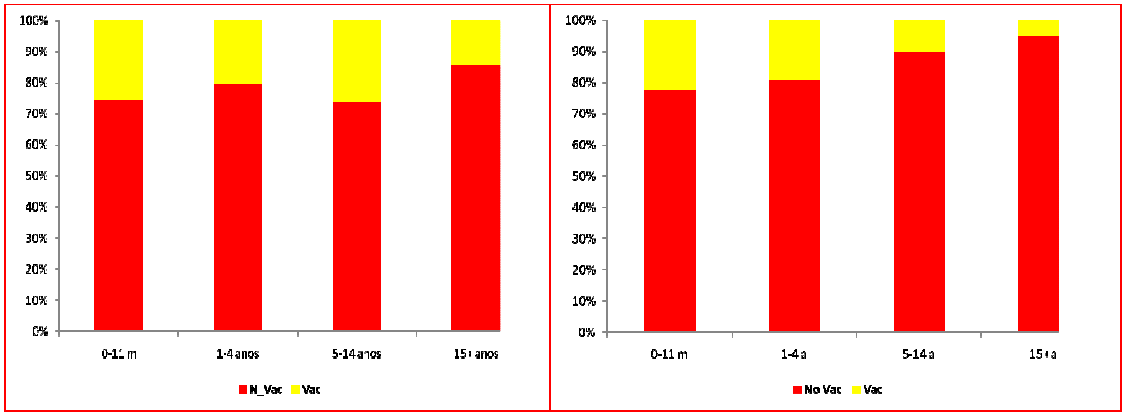
Source: MoH EPI

Figure 4.
Measles suspect cases by age. Angola, 2009 - 2010



The age group most affected by measles includes children under 5 year. In 2009 were presented immediately after the follow up campaign many outbreaks. A major outbreak registered was in the province of Cunene with many teenagers and adults in isolated nomadic people who were not exposed to infection or vaccination, explaining the high proportion of measles cases over 15 years in 2009.

Figure 5
Measles confirmed cases by age & vaccination status. Angola, 2009 - 2010



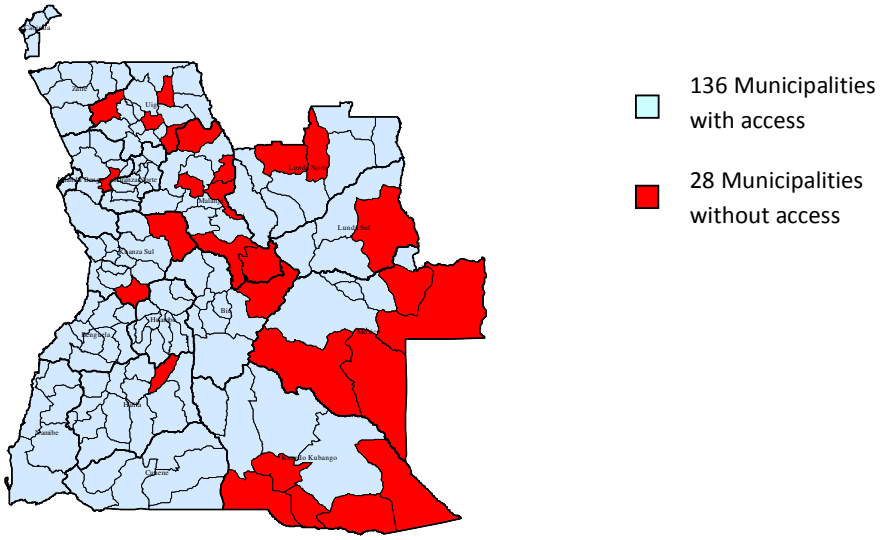
As can see from the chart 4, the measles cases occurred mostly (75% and more) in unvaccinated persons, this situation was observed in all age groups.

3.3.3. POLIO EPIDEMIOLOGICAL PROFILE

From March to July 1999, Angola has faced its largest Poliomyelitis outbreak with a total of 1,117 cases and 113 deaths reported in the provinces of Luanda, Bengo, Benguela and Cabinda. The serotypes circulating were the type 1 and the type 3 with predominance of type 3.

As results of this polio outbreak, the AFP surveillance activities and supplementary immunization activities targeting children under 5 years old were intensified. From 1999 to 2001 three National Immunization Days (NIDs) were conducted every year and in addition two Sub-NIDs had been implemented in 2001. During this period, much of the national geography was not accessible mainly due to the war.

Figure 6: Geographic accessibility during Polio NIDs.2001



Source: EPI – MoH

The implementation of mass vaccination campaigns against polio and the development of epidemiological surveillance system, allowed important advances in the Polio Eradication Initia-

tive. The last case of indigenous wild polio-virus was detected in Angola in the city of Saurimo, Lunda Sul Province in September 2001.

The implementation of wide mass vaccination campaigns against polio and the development of epidemiological surveillance system, allowed important progress in the Polio Eradication Initiative. The last case of indigenous wild polio-virus was detected in Angola in the city of Saurimo, Lunda Sul Province in September 2001.

As a result of the outbreak of polio, the AFP surveillance activities and supplementary immunization activities targeting children under 5 years of age were intensified. Between 1999 and 2001 were conducted three National Immunization Days (NIDs) every year and it was additionally implemented two Sub-NIDs in 2001. During this period, much of the national geography was not accessible due mainly to war.

After nearly four years without being detected wild poliovirus in the country, in May 2005, was isolated wild poliovirus type 1 in a child of Cacuaco municipality of Luanda Province. The results of genetic sequenciation indicated that this virus was similar to the wild poliovirus circulating in northern India in 2004.

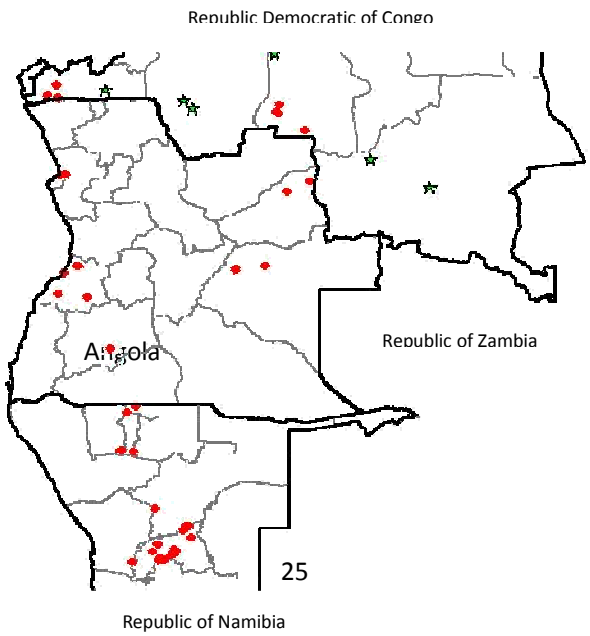
Up to December 2005 were infected four provinces of the Country, were detected two cases in the municipalities of Cacuaco and Cazenga, in Benguela Province were detected 4 cases in the municipalities of Lobito, Benguela, Cubal and Chongoroi. In Lunda Sul 2 cases were detected in the city of Saurimo and in the Province of Moxico two cases was confirmed in the municipality of the same name

In February 2006, the MoH has been informed of the isolation in the Democratic Republic of Congo, near to the North and East border of Angola, wild Poliovirus compatible with the virus isolated in Angola.

Later in the month of May2006 it received information from isolation WPV in the Republic of Namibia, near to southern border of Angola, of wild polio-virus also compatible with the virus isolated in Angola.

In June 2007 were detected a second importation from India a child of Luanda-Municipality of Maianga -. During 2007, a total of seven cases WPV type 1 were confirmed in Luanda municipalities of Maianga, Kilamba Kiaxi, Cazenga and Viana. The municipality of Benguela in the province of the same name confirmed a new WPV case.

Figure 7: Cross border Poliomyelitis Outbreak 2005 - 2006



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Source: EPI - MoH

In 2008, five WPV type 1 were detected in Luanda and Kwanza Sul, these cases was genetically linked to cases reported in Luanda, 2007.

In March 2008, we detected a third importation from India, the WPV isolated was serotype 3. From March to December, 24 WPV3 cases were confirmed, from these 13 in Luanda (in all municipalities except Rangel), Kwanza Sul (municipalities of Porto Amboim and Sumbe) and 1 case in Moxico and six cases in Benguela (municipalities of Benguela, Lobito and Balombo) and 1 case in Namibe.

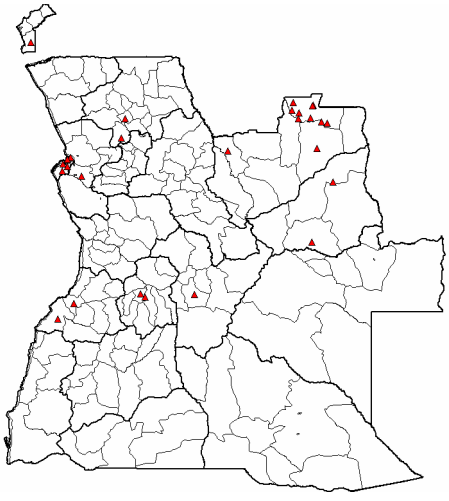
The epidemiological situation of Poliomyelitis in Angola in 2009 was characterized by persistent transmission of wild Poliovirus type 1 for over two years in the epidemiological corridor of the Provinces Luanda-Benguela, Kwanza Sul. The total number of cases nationally accumulated from January to December 2009 was 29. No cases of WPV type 3 was isolated in 2009 in contrast to happened in 2008 where 86% of cases were type 3.

Luanda concentrated 48% of the country cases (14 cases WPV1). Six out of the nine municipalities was infected: Cazenga, Kilamba Kiaxi, Cacuaco, Viana and Samba. These cities have rapid population growth by internal and external migration. The date of onset of the last case was September 7, 2009. In this year the Benguela province had 38% of all cases in the country, these cases were scattered in five of nine districts of the province: Lobito, Benguela, Balombo, Bahia Farta and Chongoroi. Other cases were presented in the province of Kwanza Sul: 3 cases in the city of Sumbe, in the province of Kwanza Norte 1 case was detected in the municipality of Cazengo.

In 2010, we recorded 33 cases of Wild Poliovirus type 1, comparing with preceding year the epidemiological pattern of transmission was changed, before 2010, cases of polio were concentrated in a few provinces, especially Luanda and Benguela, in 2010, cases of polio have been spread from Luanda to new seven provinces in Angola, many of them uninfected for over 10 years: Bie, Huambo, Lunda Norte, Lunda Sul, Bengo, Uige and Cabinda, were also exported polio cases to the DRC-Congoo and the Republic of Congo, causing outbreaks of great magnitude. The other change in the pattern of the disease occurred in the province of Cabinda where the groups most affected were adults with a mortality rate near 40%.

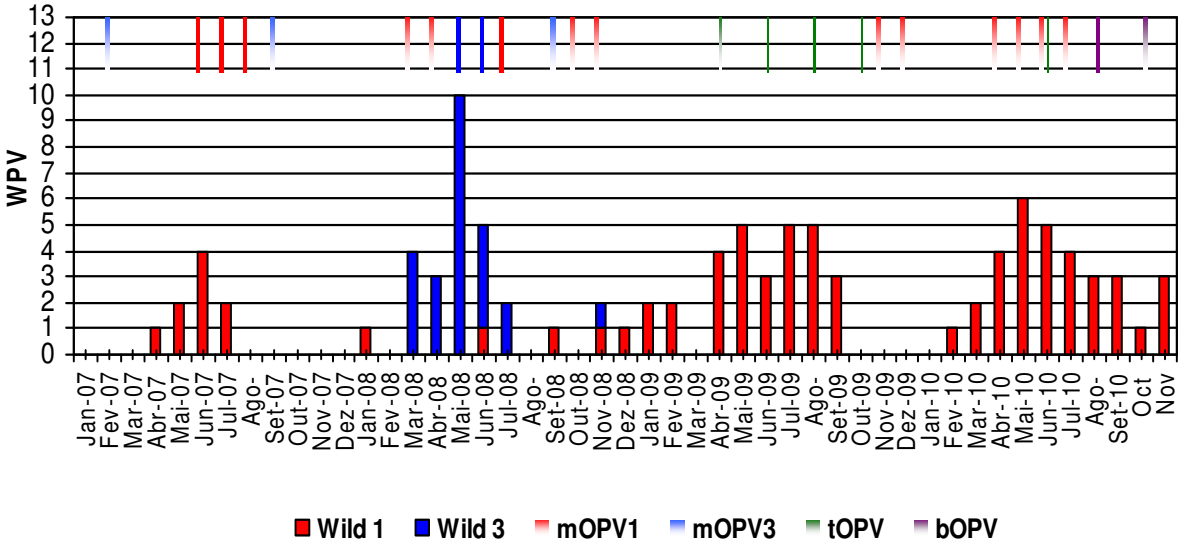
Figure 8

Distribution of 33 Wild Poliovirus type 1 cases. Angola 2010



Source: EPI - MoH

Figure 9
Wild Poliovirus cases & Polio campaigns. Angola 2007 - 2010



3.3.4. TETANUS EPIDEMIOLOGICAL PROFILE

The Neonatal Tetanus is an important public health problem due to high neonatal case fatality rate. This disease is mandatory notified in the National Integrated Surveillance System and is integrated too in the active surveillance of AFP activities.

In 2007 was carried out a risk assessment of neonatal tetanus having identified 109 municipalities with high risk, consequently was developed a national plan for elimination of neonatal tetanus for the period 2007-2008.

Under the plan of elimination of maternal and neonatal tetanus 30 municipalities of 9 provinces were selected in September 2007 to conduct supplementary immunization of about 1.4 million women of childbearing age with three doses of TT during the intensification of routine immunization. Later in the absence of reliable surveillance information of NNT the national authorities decided that the whole country was at risk.

In 2008 and 2009 were implemented two phases of the national mass vaccination campaigns of women of childbearing age given achieved more than 80% coverage in all municipalities.
It is considered that exist significant under-reporting of Neonatal Tetanus cases due to high proportion of home births and by the relative low coverage of routine immunization in rural areas.

The following table shows the NNT cases reported by provinces.

Table 15 Number of Neonatal Tetanus notified by province
Angola. 2007-2010

Province	2007	2008	2009	2010
Benguela	2	12	7	2
Bengo	8	0	0	0
Bié	0	0	3	3
Cabinda	1	1	0	0
Huambo	0	1	0	0
Huila	1	1	0	0
Kuando Kubango	1	0	0	0
Kuanza Norte	0	0	0	0
Kuanza Sul	0	0	0	0
Cunene	0	2	0	0
Luanda Norte	6	0	0	1
Lunda Sul	3	0	0	0
Luanda	40	51	41	7
Malange	3	0	0	0
Moxico	2	0	0	0
Namibe	0	0	0	0
Uige	3	0	0	0
Zaire	0	0	0	0
Total	**70**	**68**	**25**	**13**

Source: MoH EPI

3.4. SERVICE DELIVERY

3.4.1. ROUTINE IMMUNIZATION PERFORMANCE INDICATORS

In the following table is possible to see the evolution of the main indicators of the routine EPI in the last five years:

Table 16.Routine immunization performance indicatorss. Angola, 2006 -2010

Year	Access Penta-1	Coverage Penta-3	Drop-up Penta 1 – Penta 3	Coverage Measles	% Municípalities (Districts) Penta-3 <50%
2006	69	40	42	48	76
2007	111	83	25	88	24
2008	100	81	20	79	24
2009	93	73	21	77	34
2010	108	91	16	93	16

Source: JRF WHO-UNICEF 2006-2010

During 2006, despite having increased the cold chain and enlarged the qualified personnel for the introduction of Pentavalent, the national vaccine coverage fell below 50% (Penta-3) mainly due to stoppage of mobile and outreach activities and control of outbreaks of Marburg Hemorrhagic Fever, Polio and Cholera.

In 2007 were re-established outreach and mobile teams countrywide. The RED strategy had been implemented in 83 municipalities covering 85% of the population and 90% of unvaccinated children, in the remaining 81 municipalities the activities were less intensive.

In 2008, was continued the intensification of routine immunization but with fewer resources from the national level and more contributions of provincial governments and municipal administrations. The central level provides support for implementation of two rounds of intensification of routine immunization activities nationwide.

In 2009 due to the process of financial decentralization to the municipal level, the central level had no resources to support outreach and mobile teams, consequently the activities in the municipalities were held with local resources that were gaps in many of them and it was achieved a coverage lower than the previous two years.

In 2010, routine vaccination activities have gained a new momentum to put into practice the Emergency Plan for Stop Polio Transmission, having been mobilized in a more continuous and in greater proportion than previously municipal resources, the same as those supplemented with funding partners for the acquisition of cold chain, vehicles allowing RED strategy implementation in 97 municipalities of the Country.

The population's access to routine vaccination is estimated based on the proportion of children under one year old receiving one dose of Pentavalent vaccine. The analysis of this indicator with consolidated national data shows that exist proper access except for the year 2006. Appropriate access must be greater than 90% at lower levels to allow proper coverage with full doses of vaccine in multiple doses vaccines. The municipalities with vaccination coverage below 50% are characterized in general for very low and difficult access to scarce health facilities and in many cases for very small and dispersed population.

In 2008, 2009 and 2010 the indicator of access Penta-1 was over 100% this reflects, according the field findings on one hand recommencement of vaccination of children already vaccinated and on the other hand a possible underestimation of the target population since the last population census was held for nearly 40 years ago, and in this period the country received large out migration due to rapid economic development and multiple opportunities for business in the Country.

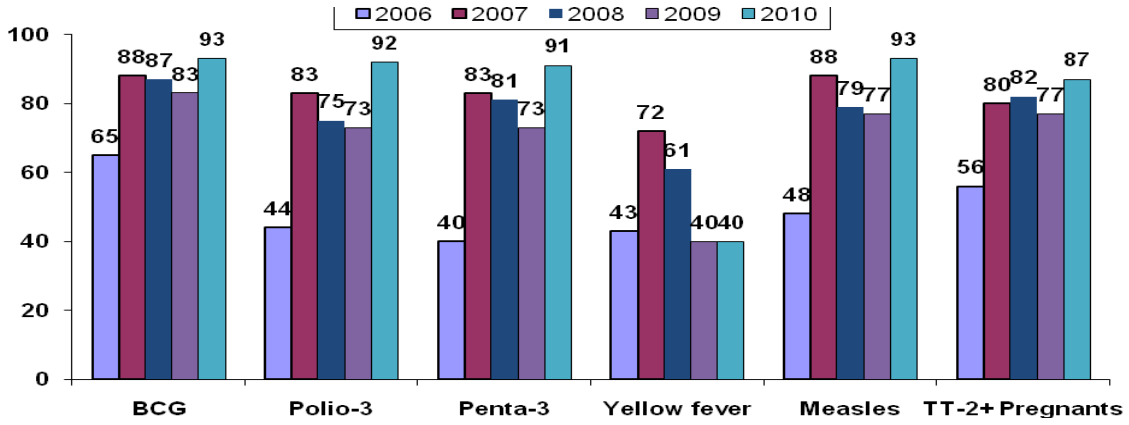
The high dropout rate is a common denominator throughout the period under review, reflecting mainly the lack of systematic follow-up visits of outreach and mobile teams and on the other hand the low efficiency of health facilities to ensure continuity of care for deficiencies in logistics and / or organization of care that leads to missed opportunities for vaccination of children and women who visit the health facilities for any reason. On the other hand it should also insufficient information from mothers or asked to demand the vaccine as needed. The very high dropout rate observed in 2006 is due largely to the restarted the vaccination of children with one or two doses of DTP when was introduced Pentavalent vaccine.

Despite the progress made over the past five years at national level, in many municipalities (28 municipalities) coverage is still very low due to several factors:

- Small network and bad distributed primary health care services;
- Insufficient cold chain equipment and fuel supply difficulties in some municipalities
- Insufficient number of the skilled technicians;
- Lack of the means of transport, that difficult make expensive the supervision and mobile teams.

The evolution of national immunization coverage during the past five years can be seen in the following chart:

Figure 10.
National coverage of routine immunization by antigens. Angola, 2006 -2010



Source: JRF WHO-UNICEF 2006-2010

As a result of the increase of routine immunization activities in the context of the "Emergency Plan to Stop Transmission of Polio in Angola", implemented in the second half of 2010, the vaccination coverage achieved in 2010 were higher than in previous years for all antigens except the vaccine against yellow fever, which in two consecutive years did not exceed 40% due to numerous stock out.

In 2010 took place important progress increasing the coverage of routine vaccination in all provinces of the country except Kuando Kubango, Kwanza Norte and Luanda. In the following graphic see the comparative coverage 2009-2010.

Figure 11. Penta-3 Coverage by provinces. Angola, 2009

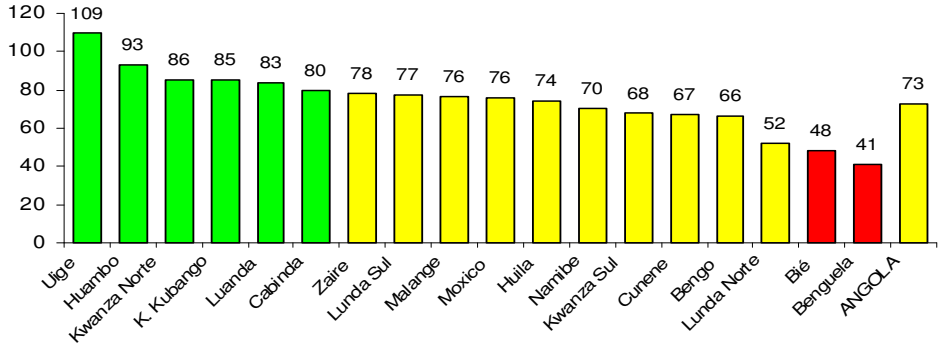
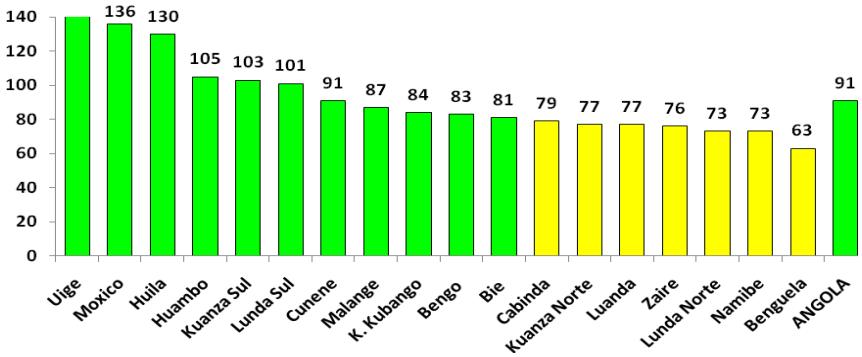
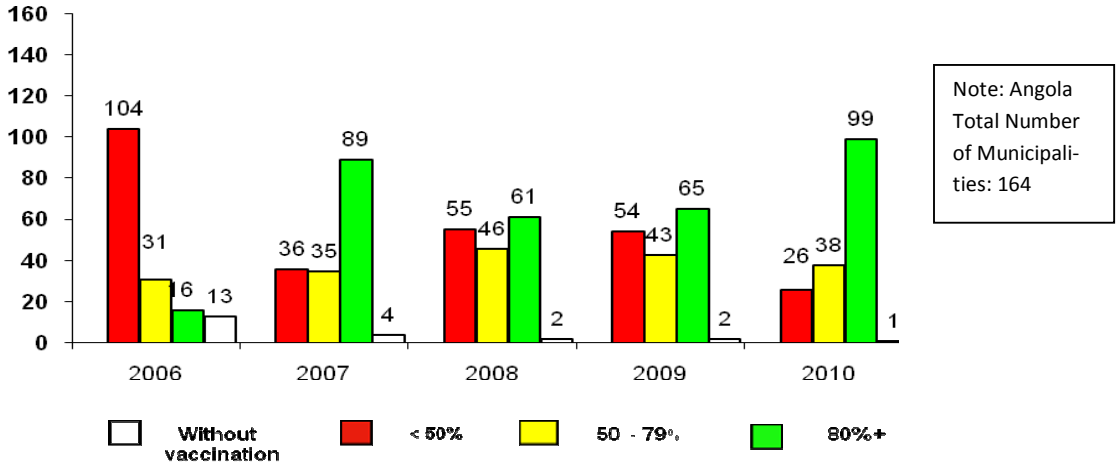


Figure 12. Penta-3 Coverage by provinces. Angola, 2010



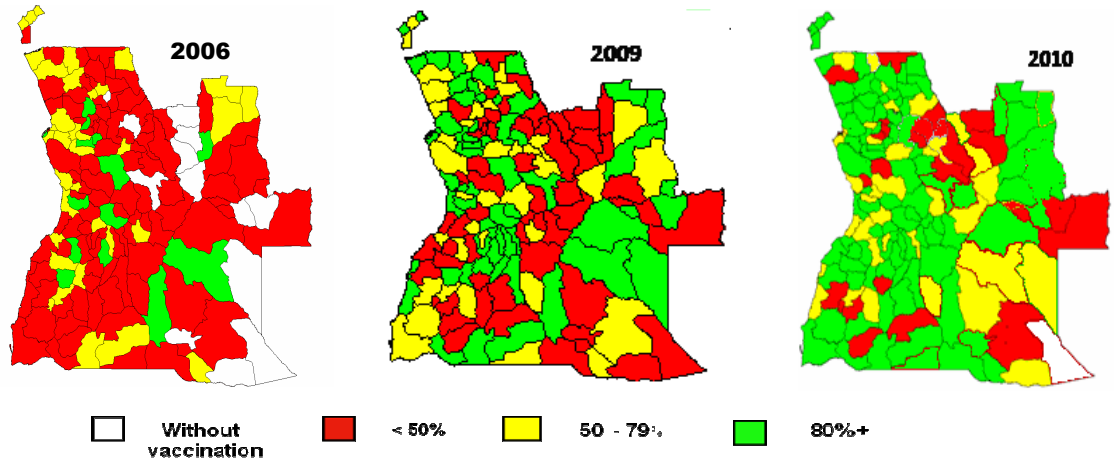
At municipal level the coverage of routine immunization are not uniformly high, there are many districts with coverage below 50% (28 municipalities in 2010). The evolution of vaccination coverage for municipalities in the period 2003 -2010 can be seen in the following graph

Figure 13
Number of municipalities by DTP/Penta-3 coverage
Angola, 2006-2010



Source: JRF WHO-UNICEF 2006-2010

Figure 14.
Coverage Penta-3 by Municipalities. Angola, 2006-2010



Source: MoH EPI

3.4.2. VACCINATION STRATEGIES

The network of health services largely destroyed during the war was gradually rehabilitated, and new facilities were built and are undergoing refurbishment. (See Table No. 5).

Currently, 929 health facilities out of 2409 perform routine vaccination activities (38%). On the other hand, most of the 1841 health posts (76% of total health services) have only one or two staffs. Nevertheless, the government is making substantial efforts in contracting more and more health professional in order to improve the population health care. From the beginning of 2004 the country has been im-

plementing the RED Strategy that gradually having increased from 54 to 83 municipalities in 2008 and 97 in 2010. Of the five components of the RED strategy the vaccination by mobile teams was prioritized and was the better developed given the limitations of the health facility network.

The outreach teams are organized around 10 to 15 km of the health facility implementing regular weekly or monthly visits to nearby villages in rural areas and neighborhoods with no health services in urban areas by foot, by bicycle and in some municipalities in motorbikes. For the movement of staff is paid a stipend of around U.S. 5 or given a snack.

The financing of the teams was gradually changing; initially was covered by GSB entirely by partners and projects. Currently the funds are allocated to municipalities and they are covering great part of the costs.

The mobile teams cover hard to reach people without health services. In the Country there are still many remote communities distant more than 100 km of the municipal and provincial headquarters that receive visits by mobile teams by very high operational costs.

For movements utilized initially leased vehicles with prices fluctuant between 130 to 270 USD per day depending on the distance and characteristics of roads. Currently still are renting cars but a lesser extent, prioritizing the use of existing vehicles of different programs and projects, and cars of municipal administrations.

Both teams outreach and mobile offer moreover vaccination, vitamin A and Albendazol and eventually when available distribute mosquito nets..

The supplementary Polio campaigns are offered through house to house strategy in urban areas and by concentration in rural areas. The campaigns against Polio are held every year with a variable frequency-dependent from Wild Poliovirus circulation.

The campaigns against measles are for concentration in fixed posts and offering supplementary doses to children under 5 years old, every 2 to 3 years.

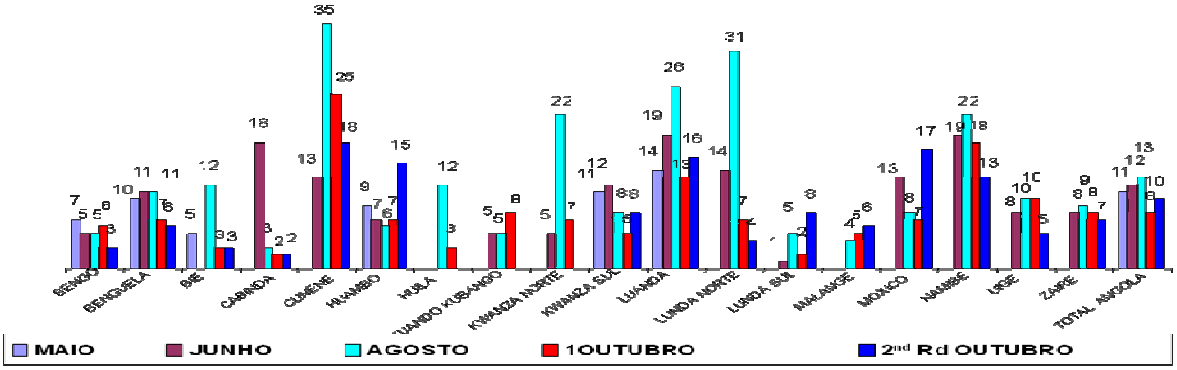
From 2008-2009, Angola conduct two national vaccination campaigns for women on childbearing age against tetanus by considering that every municipality was at risk of maternal and neonatal tetanus due to low coverage of institutional delivery and lack of reliable surveillance.

The Polio National Immunization Days (NIDs) began in 1995 in six provinces of Angola. From 1996 until now (or as of today), MoH implemented NIDs and Sub-NIDs against polio with an initial frequency of the two rounds per year. From 1999 to 2005 the frequency national of campaigns was increased to three per year. Since 2005 the frequency was 3 to 4 rounds of NIDs and 2-6 sub national campaigns per year covering the provinces with new cases of Wild Poliovirus or at high risk of transmission. Some of these campaigns were synchronized with neighbouring countries (DRC, Congo Brazzaville, Namibia and Zambia.

Since the reintroduction in 2005 of Wild Poliovirus in Angola to 2010 were conducted over than 30 Immunization Days that have short-term impact to interrupt the transmission of WPV, due to the successive reintroductions of the virus of polio by importation (2005, 2007, 2008).and by the low quality of campaigns. Since 2005 the Country is utilizing monovalent vaccines type 1 or type 3 to improve the effectiveness of vaccination campaigns increasing rates of seroconversion. In 2010 additionally there was start the utilization of bivalent vaccine types1- 3..

Other child survival interventions were introduced during immunization campaigns; the administration of Vitamin A and the deworming with Albendazol, these interventions helped to improve the acceptability of vaccination against polio in some communities.

Figure 15
Percentage of children under-5 not vaccinated during Polio NIDs campaigns
Independent monitors surveys results Angola. 2010



Source: MoH EPI

3.5 COLD CHAIN and LOGISTICS

3.5.1. COLD CHAIN

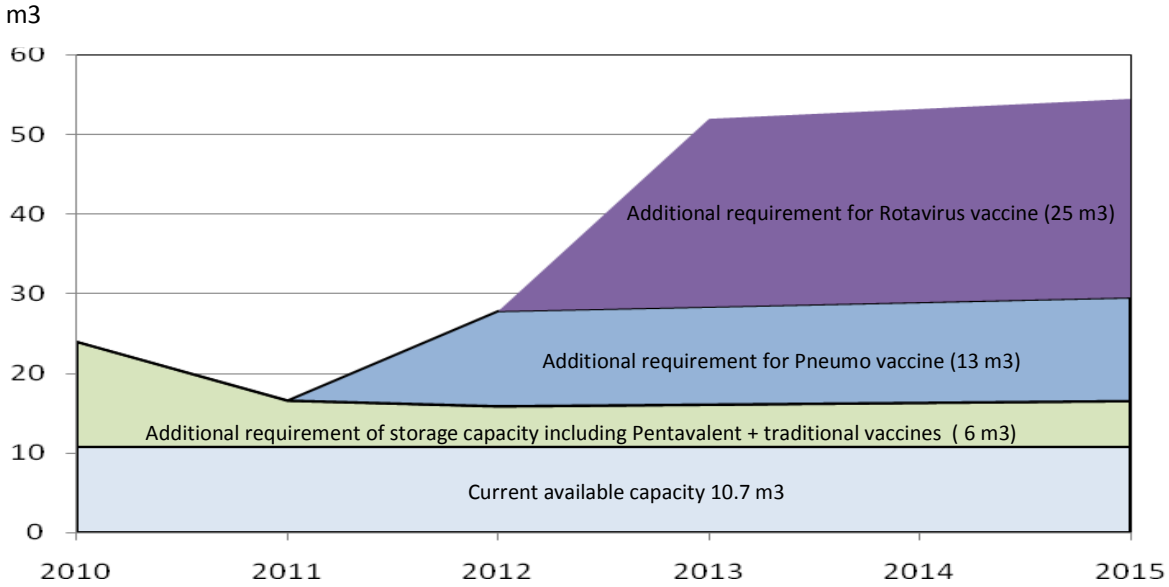
The net capacity of the central cold room for positive storage of routine vaccines is only 10.7 m3 insufficient to receive national needs of routine vaccines currently in use, namely: BCG, measles, tetanus toxoid, Pentavalent, Hepatitis B and yellow fever vaccines. These vaccines require additionally between 6 to 13.2 m3 storage capacity depending on the presentation of Pentavalent vaccine (single dose vial or multidose vial/10 doses).

Central negative cold room storage capacity for routine polio vaccine is also 10.7 m3 which is more than sufficient for routine vaccines.

To receive on quarterly base (four shipments by year) the annual requirements of routine vaccines for the whole country and three months of buffer stock, given the insufficient national storage capacity, MoH leases and control private cold rooms in Luanda. Therefore to keep the vaccine used for polio and measles vaccination campaigns MoH temporarily rented cold rooms.

In graph No. 17, it is observe the situation in 2010 (available capacity 10.7m3) and the deficit of about 13.2 m3 caused mainly by the use of Pentavalent vaccine in single dose presentation. For 2011 are estimated to reduce the deficit by the use of multidose vials of vaccine (10 doses) of Pentavalent vaccine, we hope that availability of Pentavalent multidose vial will continue to 2015. The projected requirements for additional storage considered the introduction countrywide the Pneumo vaccine in 2012 and rotavirus vaccine in 2013.

Figure 17. Projected net minimum capacity necessary for positive-storage of routine vaccines Angola, central 2010 - 2015 (in m3)



Parameters used to estimate the storage space need of the central cold rooms (Figure No. 17):

- Target population 100% of estimated annual births
- Vaccine received four shipments per year
- 3 months of buffer stock
- BCG vaccine 1.2 ml /dose Pentavalent vaccine single dose 19.2 ml /dose, multidose pentavalent vaccine (vial of 10 doses), 3 ml /dose, YF 2.5 ml / dose, measles 3ml/dose, TT 2.5 ml / dose.
- Pneumo-13 Vaccine single dose, 12 ml /dose
- Rotavirus Vaccine single dose 17.1 ml /dose

By 2013 it will require at central level minimum net storage capacity of around 55 m3 for positive cold room this mean that must have a gross capacity of 229 m3 (reduction factor of 4.2). Whereas a prevision needs by 2020 the MoH has a project to build 2 cameras one in 2011 and another in 2012 (45m3 of net capacity every one) totalizing 90 m2 before the introduction of Rotavirus vaccine.

At the central level there is a team of three technicians to ensure the management of routine and campaigns vaccines.. There is in use a central computerized tool for vaccine and supplies stock management.

The central level distributes the vaccines and injection supplies quarterly with exception of Luanda province that receive monthly/by monthly for insufficient storage capacity reasons.

Table 18 shows the storage capacity in the provinces of Angola and the potential gaps to cover the needs of storage in the cold chain positive. To cover the gap some provinces storage some vaccines in negative cols chain (measles, yellow fever) and the shipments are at bi-monthly base.

The stock control is performed a monthly basis through written reports and by e-mails or telephone messages to central level notifying the available stock and needs.

Table 17. Positive storage capacity available and additional needs. Angola. 2010-2015 (in litters)

Province	Availability cold storage litters 2010	GAP (red) or excess (black) of storage in litters				
		2011	2012	2013	2014	2015
Bengo	118	21	-154	-339	-363	-391
Benguela	6667	5.458	3282	985	690	337
Bie	885	375	-544	-1514	-1638	-1788
Cabinda	641	442	85	-293	-341	-399
Cunene	924	751	439	109	67	16
Huambo	620	95	-850	-1848	-1976	-2130
Huila	682	38	-1122	-2346	-2504	-2692
Kuando Kubango	701	544	262	-36	-74	-120
Kuanza Norte	508	356	82	-207	-244	-289
Kuanza Sul	423	20	-704	-1469	-1567	-1685
Luanda	1200	-141	-2555	-5103	-5430	-5822
Lunda Norte	320	75	-366	-832	-891	-963
Lunda Sul	156	42	-162	-379	-406	-440
Malange	354	130	-274	-701	-755	-821
Moxico	776	542	121	-323	-380	-448
Namibe	412	328	175	15	-6	-30
Uige	520	32	-847	-1775	-1894	-2037
Zaire	592	493	315	127	102	74

Source: MoH EPI inventory cold chain in process of updating.

The provincial level sends vaccines and vaccination supplies to the municipalities monthly or bi-monthly in turn redistribute to health units monthly.

The monthly reports of health facilities are send to the municipal level informing the consumption of vaccine and supplies and remaining stock. In some provinces, municipalities notify biweekly the availability of stock of vaccines and supplies.

In 2008 it was reinforced the cold chain of inaccessible areas of 8 provinces in the country by installing 150 solar energy equipment and staff training of provincial and municipal level.

The cold chain units and the majority of municipalities were reconverted from petroleum to gas for ease maintenance. The new purchasing of cold chain equipment considers no longer use of petrol source of energy.

The network of health services in the country that perform routine immunization is inequality distributed and covers only around of 47% of existing health facilities. The main reasons are the lack of cold chain, the difficulty of supplying fuel and the insufficient health personnel.

In the second half of 2010, was started buying a lot of important cold chain equipment for seven of 18 provinces of the country, many of which equipments are next to arrive to be distributed in health facilities, municipal and provincial levels.

Table 18.Routine immunization fixed posts distribution by provinces. Angola, 2010

Province	Population (births)	Health facilities with information	Health facilities with immunization fixed posts	Rate of fix posts /1000 births	Percentage of Health facilities with fixed posts of immunization
Bengo	13.038	92	42	3,2	46
Benguela	162.080	180	112	0,7	62
Bie	68.434	110	71	1	65
Cabinda	26.639	49	25	0,9	51
Cunene	23.244	68	19	0,8	28
Huambo	70.418	173	83	1,2	48
Huila	86.393	215	103	1,2	48
Kuando Kubango	21.024	34	17	0,8	50
Kuanza Norte	20.397	89	32	1,6	36
Kuanza Sul	53.980	158	55	1	35
Luanda	269.713	168	153	0,6	91
Lunda Norte	32.849	46	22	0,7	48
Lunda Sul	15.253	36	10	0,7	28
Malange	30.087	114	43	1,4	38
Moxico	31.343	122	46	1,5	38
Namibe	11.328	71	32	2,8	45
Uige	65.480	168	47	0,7	28
Zaire	13.276	87	27	2	31
Total	1.014.976	1980	939	0,9	47

Source: Municipal monthly EPI reports 2010

The financial implications for increase the storage capacity for vaccines and urgent renewal of equipment to be covered by the Government and partners the first two year are:

Table 15. Estimated minimal cost for additional storage capacity to receive Pneumo and Rotavirus vaccines
Central, Provincial and Local level. Angola 2011 - 2012

Critical Cold chain equpment (net capacity of storage)	2011	2012
2 Cold room (positive storage) central level 120m3/each + generators	235.330	235.330
1 Cold room (positive storage) provincial level 40m3/each + generator	78.443	
2 Cold room (positive storage) provincial level 20m3/each + generators	58.718	58.718
8 Cold room (positive storage) provincial level 150m3/each + generators	217.588	217.588
82 electric refrigerators 135 liters/each	63.724	63.724
200 refrigerators Gas/electric 24 liters/each	172.500	172.500
Total	826.303	747.860
	1.574.163 USD	

3..5.2. IMMUNIZATION SAFETY

The National Immunization Safety Plan define the use of syringes for administration of auto disable syringes for administration of all injectable vaccines, and the use of disposable syringes for reconstituting lyophilized vaccines, also specifies the use of safety boxes for disposal of used syringes, the plan proposes the gradual purchasing of incinerators to provide this equipment to all municipalities of the country.

Since 1994, the EPI Angola is using auto disable syringes without stock out in all districts at country level. Discard of used syringes is done safety boxes that are burned in open air and buried. No incinerators exist except in the province of Luanda, where used syringes are collected together by a hospital waste by a private company for waste disposal by incineration.

The reasons for not buying incinerators were their high cost and competing priorities.

From 2008 the country uses the "policy of open vials " which consist in the utilization of liquid vaccine (Polio and tetanus toxoid) until one week after being opened, properly hygiene taking care.

The reporting and routine investigation of adverse events following immunization is underdeveloped mainly because of scarce skilled personnel to conduct the investigations.

During the mass vaccination campaigns against measles and the TT vaccination campaigns was carried out an active research and reporting of adverse events. The monthly reports include immunization adverse events that are easily recognized as being abscesses after vaccination, accidents and death attributed to anaphylactic shock.

3.6. COMMUNICATION AND SOCIAL MOBILIZATION

Over the past five years the efforts of communication and social mobilization were directed mainly to support the implementation of Polio vaccination campaigns against and to a lesser manner to promote the demand for routine immunization of the population in urban and rural areas, using mass media such as radio and television; spots and mini-dramas were broadcaster in Portuguese and eight national languages by national and local public and private means, as well as through telephone messages (SMS) sent to users periodically by two telephone companies operating in the country

These activities complemented each other with the organization at the provincial and local event information and motivation with local authorities and partners such us churches leaders, traditional authorities (chiefs) women organizations, NGOs, scouts and other local organizations.

Communication activities have also been implemented by interpersonal social mobilizers who are community volunteers with a basic training on educational and informational broadcast messages about vaccination. In the churches during the religious services were broadcast pulpit announcements informing the faithful about the dates of vaccination campaigns. In health facilities in the waiting halls of some health services are held communication activities for mothers and families of the children.

The strategic plan for communications and social mobilization strategies for 2011-2015 includes integrated activities for supporting preventable diseases eradication and control and to promote routine immunization.

3.7. SITUATION ANALYSIS OF EPI BY SYSTEM COMPONENTS

Table 19. Routine EPI by system components

System components	Suggested indicators	National status				
		2006	2007	2008	2009	2010
Vaccination coverage (routine)	DTP3	40	83	81	73	91
	% Provinces> 80%				6	11
	National DTP1-DTP3 drop-out rate	42	25	20	21	16
Underused Vaccines	Pentavalent	40	83	81	73	91
	Yellow Fever	43	72	61	40	40
Surveillance	% of surveillance reports received at national level	75	89	97	99	99
	Non-polio AFP rate per 100.000 children under 15 years of age	2.4	3	3.4	3.1	3.8
	NID/SNID N of rounds, coverage range	4 75,99, 102,103,,	4 99,104 107,107	8 98,105, 104,100, 98,103, 102,109	6 101,109 110,114, 98,101	5
	Number of measles cases reported and confirmed	1 9- 59 months	1014	265	123	110/1.075

	Number of measles outbreaks reported	**22**	**5**	**12**		**1**
	NID/SNID **Age group, coverage**	**5-59 months**	**5-59 months**	**5-59 months**	**5-59 months**	**9 -59 months**
	Percentage of provinces reporting >1 case Tetanus per 1000 live births					
	% of provinces reporting >1 YF case	**0**	**0**	**0**	**0**	
	Was a preventive campaign conducted (Y/N)	**N**	**N**	**N**	**N**	**N**
Immunization safety	Percentage of provinces that have been supplied with adequate (equal or more) number of AD syringes for all routine immunizations	100%	100%	100%	100%	100%
Vaccine supply	Was there a stock-out at national level during the last years?	Y	Y	Y	Y	Y
	If yes, specify duration in months	1	1	1	1	1
	If yes, specify which antigen(s)	YF	YF	YF	YF	YF
Communication	Availability of a plan (Y/N)	Y	Y	Y		Y
Financial sustainability	% of total routine vaccine spending was financed using government funds (including loans and excluding external public financ-	Excetp Penta All 100%	Excetp Penta All 100%	Excetp Penta All 100%	Excetp Penta All 100%	Excetp Penta All 100%

	ing)					
Linkage to other health interventions	Were immunization services systematically linked with delivery of other interventions (malaria, nutrition etc)	Y	Y	Y	Y	Y
Human resources availability	No of health workers/vaccinators per 10.000 population					
ICC	No of meetings held last years	48				12
Waste disposal	Availability of a waste management plan	Y	Y	Y	Y	Y
Programme efficacy	Vaccine wastage monitoring at national level for all vaccines (Y/N)	Y	Y	Y	Y	Y
	Timeliness of disbursement of funds to provinces and services delivery level *					

3.8. SWOT ANALYSIS BY SYSTEM COMPONENTS

Table 20. SWOT analysis by system components

Components	Strengths	Weaknesses	Opportunities	Threats
Service delivery	• Existence of strong coordination mechanism at national and county levels including ICC . • Over % of the public health facilities in Angola are providing EPI services. • Gradual increase in administrative coverage from 2006 to present. • Integrated delivery of high impact interventions into routine immuniza-	• Most private health facilities are not providing routine EPI services • Great part of service providers are not trained. • Non-estimation of wastage rates. • Irregular supervision. • Insufficient implementation of all RED strategies (97/164) • Weak data quality and timeleness • Insufficient analysis of vaccination data	• Availability of national health plan. • Active participation of some partners in routine immunization. • Support from GAVI and other partners • There is political commitment • Communal health promotion in some of the provinces	• Global economic crisis.

	tion. • Well defined vaccination strategies • Existence of the annual operational plan • Existence of the routine vaccination intensification plan	corrective decision making, at provincial level.		
Surveillance	• Existence of surveillance at all levels. • Case-based surveillance for priority diseases established. • Strong collaboration of partners in support of surveillance. • Review mechanism established. • Target for many of the surveillance indicators achieved and maintained.	• Timeliness of reporting is weak.	• Technical support from STOP teams. • Support from WHO and other partners.	• Risk of importation of WPV. • Declining funding for polio eradication.
Vaccine supply and quality	• Forecast at national level • Regular supply of bundled vaccines. • All vaccines received have VVM except BCG. • All vaccines are from WHO pre-qualified manufacturers	• Limited monitoring of vaccine wastage at all levels. • Deficiency of vaccine and vaccination material stock management during the campaigns.	• Continual GAVI co-financing support. • Establishment of the supply chain management mechanism.	• Increasing global demand and prices of vaccines • Global financial crisis
Cold chain and logistics	• Adequate quantity of vaccine carriers at all levels. • Adequate quantity of injection safety equip-	• Current vaccine storage capacity at national level is inadequate. • Lack of incin-	• Continual assistance from partners (WHO, UNICEF etc) in vaccine transport and storage.	• Irregular and declining partners support.

	ments at all levels. • All injectable vaccines are administered with auto-disable syringes. • Solar refrigerators available in the country. • Existence of the national cold chain network	erators in most of health facilities	• Gradual replacement of kerosene refrigerators with solar refrigerators. • The provincial project for fight against poverty has a budget line to support cold chain	
Advocacy and communication	• Availability of National Communication strategy document. • Support from partners. • Existence of community agents for municipal health services revitalisation.	• Limited Inter-Personal Communication skills at the health facility level. • Lack of social mobilization activity for routine immunization.	Existence of the national network of journalists	
Management	• The establishment of government authority in all parts of the Country • The existence of Basic Package Health Services (BPHS) that is focused on primary health care including EPI. • Existence of Coordination mechanism at all levels (ICC, Etc.) • Existence of EPI policy that is aligned with national and global priorities. • EPI Management structure with clearly defined term of reference. • Descentralisation of the health management	• Less involvement and coordination in routine immunization by private health sectors. • Inadequate and irregular supportive supervision at all levels.	• Donors and partners support. • High political commitment.	• Contextual events including elections

Financial sustainability	• The establishment of the sub-comission for Financial Management at national level • Existence of budgetary line for vaccination in the National Budget. • Funding of all traditional vaccines with OGE and co-financing new vaccines • Administrative and financial decentralisation at municipalities level		• GAVI Funding available • Creation of projects for financial resources mobilisation • Existence of funds from provincial projects for poverty reduction	• Global Economic crisis.
Human resources and institutional strengthening	• Increased number of health facilities offering EPI services. • Existence of vaccination focal points at all provinces and municipalities	• Shortage of health workers	• Availability of willing, personnel. • Technical and financial support from WHO/UNICE	• Staff/brain drain.

4. OBJECTIVES

4.1. GENERAL OBJECTIVE

To reduce morbidity and mortality due to vaccine preventable diseases for the period 2011-2015

4.2. SPECIFIC OBJECTIVES

From now by 2015

a) To increase and maintain the vaccination coverage among children under one year of age for:

- BCG – from 93 % to 95 %
- Penta3 – from 93 % to 95 %
- VPO3 – from 93 % to 95 %
- Measles - from 93 % to 95 %
- Yellow fever - from 93 % to 95 %
- TT2 - from 93 % to 95 %

b) Introduce PCV-13 in 2013- from 93 to 95

c) Introduce Rotavirus vaccine in 2013- from 70 to 80

4.3. NATIONAL COVERAGE OBJECTIVES AND DROP-OUT RATE 2011- 2015

Table 21. Coverage objectives and drop-out rate 2011- 2015

Antigen	2011 (%)	2012 (%)	2013 (%)	2014 (%)	2015 (%)
BCG	93	93	94	94	95
Penta3	93	93	94	94	95
Penta1/3 drop-out rate	11	10	9	9	9
VPO3	93	93	94	94	95
Measles	93	93	94	94	95
Yellow fever	93	93	94	94	95
TT2+ PW	93	93	94	94	95
PCV-13		93	94	94	95
Rotavirus			70	75	80

4.4. NATIONAL OBJECTIVES FOR VACCINE WATAGE RATE BY ANTIGEN 2011- 2015

Table 22. Objectives for vaccine wastage rate by antigen 2011- 2015

Antigen	2011 (%)	2012 (%)	2013 (%)	2014 (%)	2015 (%)
BCG	50	45	40	35	35
Penta	5	17	16	15	15
VPO	25	22	22	20	20
Measles	20	17	16	15	15
Yellow fever	20	17	16	15	15
TT	20	17	16	15	15
PCV-13			5	4	3
Rotavirus			5	4	4

4.5. PRIORITIES FOR FIVE YEARS PERIOD 2011 - 2015

In the context of decentralization and considering the weaknesses and needs of Angolan EPI the priorities for 2011-2015 are mainly oriented to develop strong municipal-based immunization system:

4.5.1. HUMAN RESOURCES CAPACITY BUILDING

- Build capacity of municipal and front line health staff for effective plan, implement and monitor the programme adapted to local conditions through basic training and supportive supervision.
- Built capacity for effective management of human resources, financing, vaccine, cold chain and logistic, focused at central and province level, implementing yearly national mid level managers courses.

4.5.2 STRENGTHENING THE COLD CHAIN AND SAFE WASTE DISPOSAL

- Installation of cold rooms with emergency power generators at central level and provinces with more than 700,000 inhabitants;
- Provision of additional cold chain equipment, to the provinces and municipalities with storage capacity gaps for receive new vaccines.

- Gradual expansion of cold chain equipment and maintenance to health facilities without routine immunization and renewal of old equipments, appropriated to storage needs and available energy source;
- Gradual installation of incinerators across all the municipalities and some densely populated communes.

4.5.3. INCREASE COMMUNITY DEMAND FOR IMMUNIZATION

- Production and broadcast continuous spots and mini-dramas by radio in national languages and Portuguese through national and local public and private radios.
- Conduction of daily awareness meetings (IEC sessions) on the benefits of routine vaccination in the waiting halls of all health facilities.
- Promote local advocacy and information meetings to promote demand of vaccination by the population.

4.5.4. ENSURE THE CAPACITY FOR SURVEILLANCE AND MONITORING

- Ensure the training at local level on Integrated Disease Surveillance and Response and adverse events following immunization.
- Develop the capacity for data analysis and monitor of performance indicators, utilizing where available computerized tools. .

5. PLANNING STRATEGIES AND ACTIVITIES FOR SYSTEM COMPONENTS

5.1. The Immunization System Components

5.2. Immunization operations

The immunization system consists of five key immunization operations as follows:

- **Service delivery** – covers the strategies and procedures in giving vaccinations
- **Logistics** – include delivery of vaccines and equipment to the place of use, required transportation, management of cold chain and waste disposal
- **Vaccine supply and quality** – consists of forecasting vaccine needs, procurement of vaccines, monitoring of vaccine utilization and safety procedures
- **Disease surveillance** – includes monitoring of disease incidence, laboratory testing, record keeping and reporting with the necessary feedback
- **Advocacy and communication** – covers social mobilization, advocacy, community education on immunization and programme promotion.

5.3. Supportive components of immunization services

The immunization operations are sustained through the following supportive components: management, sustainable financing, human and institutional resources. .

- Management includes policy making and standard setting, planning, co-ordination, information collection and sharing, collaboration with other partners, quality assurance, monitoring and evaluation.
- Sustainable financing comprises budgeting, identifying long-term funding sources, actions leading to increased allocation of financial resources for immunization programmes.

- Strengthening human and institutional resources includes staffing, training, supervision and institutional support (including supply of technical information, support to research projects etc.).

5.4. Table 25 PLANNING STRATEGIES AND ACTIVITIES BY SYSTEM COMPONENTS (annex 1)

6.. MONITORING AND EVALUATION

The MoH-EPI has established a sub-information system for routine immunization to enable to collect monthly key performance indicators.. The system consists of set of forms for data collection, vaccination forms, consolidation and monthly reports by level and simplified graph of the monthly monitoring access, coverage and drop out rate this chart is widely utilized at local level.

The monitoring of performance indicators for EPI is carried out by level:

- At the central level during the monthly meetings of EPI and technical meetings of the Interagency Coordinating Committee, the EPI indicators are discussed by municipality.
- Every month, the central level provides feedback information to the provincial level.
- The Deputy Minister / Minister of Health periodically (2-4 times per year) send letters to the governors informing provinces of performance indicators and making recommendations.
- In the laboratory area, are organized monthly meetings between the technical team and technicians of national reference laboratory to monitor activities and interchange information.
- The National Expert Committee and the secretariat of EPI meet periodically to review the indicators for monitoring and vaccination, as well as for the final classification of AFP cases.
- At provincial level were conducted monthly meetings of integrated data analysis of vaccination and surveillance by municipalities. This activity is not yet systematic and regular.

The EPI supervision is carried out in cascade: the central level oversees the provincial level with support of partners because of the scarce national staff at central level. The supervisions are integrated taking advantage of many opportunities to travel to support vaccination campaigns with a frequency of 2 to 3 times per year.

Supervision from the province to municipalities is carried out by provincial teams for monitoring and making adjustments with monthly/bimonthly frequency. The supervision of health facilities is performed by municipal staff with a monthly frequency. During the supervisions are used checklists that cover all components of the vaccination system.

The supervision in general is not regular due to limitations of transportation and e per diem and for the high operating costs prevalent in the country

7. A VISION FOR ANGOLA IN 2015

- Immunizations are essential to strengthening the health system and are offered free of charge for all on public and private health facilities on a continuous and sustained manner.
- More people are protected against most preventable diseases.
- Every child, teenager or adult EPI targeted have similar access to vaccination, regardless of their place of residence, gender or social status.

- The staff of the health facility network developed their technical capacity and has adequate means to transport, store, administer vaccines and destroy the used material maintaining high standards of quality and safety.

8. MISSION

The mission of the Ministry of Health of Angola in the field of immunizations is to create conditions and facilitate the means to protect populations against targeted vaccine preventable diseases.

7. PLANNED EXPECTED RESULTS OF EPI MYP 2011-2015

Contribute to reduction of morbidity and mortality from preventable diseases among children and women in Angola in the period 2011-2015.

This result will direct contribute to achieve the Government objective to reduce in 1/3 the children under-5 years' age mortality rate. (Millennium Development Goal-4)

The planned outcomes and outputs of EPI for the period 2011 – 2015 are:

7.1. OUTCOMES AND OUTPUTS

Outcome 1: ***Over 90% of children under-1 and pregnant women receive immunization with all the antigens of national schedule and reach at least of 80% of immunization coverage in all municipalities of the Country***.

The following outputs will ensure that the planned outcome 1 will achieved

Output 1.1**:** 100% of health services in urban areas performing routine immunization;

Output 1.2**:** 70% of health services in rural areas performing routine immunization;

Output 1.3**:** 80% of health services implementing regular outreach activities with vaccines integrated with vitamin A, Albendazol and distribution of mosquito nets.

Output1.4**:** 75% of municipalities regularly visiting by mobile teams to hard to reach communities without health services, offering vaccines integrated with vitamin A, Albendazol and mosquito nets;

Output1.5**:** 90% of parents/caretakers with children under-1 year old, informed about the benefits of vaccination.

Outcome 2: ***Burden of vaccine preventable diseases reduced: Stop wild poliovirus by 2011; >98% Measles mortality reduction by 2012 as compared to estimates for 2000; Neonatal Tetanus reduced <1/1000 live births.***

The following outputs will ensure that the planned outcome 2 will achieved:

Output 2.1**:** ≥ 95% coverage of Polio NIDs/Sub-NIDs in children under 5 years old (independent monitoring data);

Output 2.2**:** Non polio AFP rate ≥ 2/100.000 & Samples adequacy ≥ 80%;

Output 2.3**:** >95% Measles SIAs coverage in all districts in children 9-59 months;

Output 2.4**:** Non-measles febrile rash illness rate >2.0/100,000 population per year;

Output 2.5**:** >80% TT-2 SIAs coverage in all selected municipalities in WCBA.

Outcome 3: ***Effective and sustainable introduction countrywide of new vaccines against priority diseases.***

The following outputs will ensure that the planned outcome 3 will achieved:

Output 3.1**:** Manual of standards and information system updated and 90% of health staff trained;

Output 3.2**:** 100% of cold chain and logistic at all levels with sufficient storage capacity to receive and transport all routine vaccines and injection supplies;

Output 3.3**:** Surveillance system to document baseline and reduction of diseases prevented by new antigens established**;**

Output 3.4**:** Introduction of Pneumo vaccine countrywide in 2012;

Output 3.5**:** Introduction of Rotavirus vaccine countrywide in 2013.

Outcome 4: I***mmunization safety and effective vaccine management improved***

The following outputs will ensure that the planned outcome 4 will achieved:

Output 4.1**:** 90% of front line health staff capable for deliver/counselling immunizations following safe injection practices;

Output 4.2**:** 100% of the equipment for vaccine storage at central, provincial, municipal and health centers with daily monitoring of temperature;

Output 4.3**:** 100% of central and provincial levels utilize computerized vaccine and logistics management systems**;**

Output 4.4**:** Adverse events following immunization surveillance system implemented nationwide;

Output 4.5**:** 90% of municipalities with functional incinerators.

Outcome 5: ***Surveillance sensitivity and immunization data quality improved***

The following outputs will ensure that the planned outcome 4 will achieved:

Output 5.1**:** 90% of surveillance provincial and municipal technicians trained on IDSR and case based vaccine-preventable disease surveillance;

Output 5.2**:** 100% of municipalities implementing integrated disease surveillance and response (IDSR) approach;

Output 5.3**:** 90% of active surveillance sites priority 1 and 2 visited weekly or biweekly respectively.

Output 5.4**:** 100% completeness and 80% of timeliness on routine immunization & surveillance municipal reports received at central level;

Output 5.4**:** Data quality auditing self assessment integrated in supervision tools at all levels.

9. STRATEGIES AND KEY ACTIVITIES

The strategy to implement an EPI Multi-year plan in Angola will follows the guidelines of the Government's General Plan from 2011-2015 and the Global Immunization Vision and Strategy (GIVS) 2006-2015 approved by Fifty Eight World Health Assembly to contribute to achieving Millennium Development Goals (objective 4)..

9.1. INTEGRATION OF EPI INTO MINISTRY OF HEALTH STRATEGIES

EPI activities are part of the National Plan for Revitalization of Municipal Health Services and the Accelerated Reduction of Maternal and Child Mortality Plan and will be implemented in an integrated manner with other essential health interventions such us vitamin A and Albendazol administration, treated bet nets distribution etc.

To give support and supervise the plan implementation in provinces, the central level organized a national technical team (government / partners), following the division of the country in six operational regions established for the Revitalization of Municipal Health Services, given territorial responsibility, as well as continued support monitoring and evaluation of performance indicators of the respective provinces.

9.2. COORDINATION AND PARTNERSHIP

The resource mobilization and coordination of international cooperation as well as the periodic overall monitoring of activities will continued the weekly/biweekly meetings of the Interagency Coordinating Committee (ICC) that integrates WHO, UNICEF, USAID, Rotary, Red Cross, CORE Armed Forces representatives. The ICC approves the plans and budgets and monitor monthly performance indicators of EPI by municipalities.

The MOH will continue to promote the participation of new partners and donors in the ICC, in order to increase operational and financial capacity of EPI and continue to support the Polio Expert Committee in its ordinary sessions of situation analysis, final classification of Polio cases and advisory services to the MOH. The formalization of the Technical Immunization Advisory Committee will continue to be impelled by the normalization of its functions and official appointment of its members.

9.3. VACCINATION DELIVERY

The strategy to reach each person in the target group will use a combination of locally defined approaches: fixed posts vaccination, outreach, mobile teams and supplementary immunization campaigns. The general strategy to achieve high coverage of routine immunization uniformly distributed in all municipalities of the country consists of:

- Gradual extension of health facility network of fixed post vaccination through the appropriate training and distribution of cold chain equipments to all health services with catchment area of around 10,000 inhabitants and at least two health staff. Localities < 10.000 inhabitants will be attended by outreach or mobile teams;
- Integration of private clinics in routine immunization activities under agreement with local governments;
- Gradual extension of RED strategy implementation from 97 to 164 municipalities developing on a balanced way the five operational components of the strategy.

- In municipalities with low population access will be prioritized outreach and mobile teams. The municipalities with the highest number of unvaccinated children will receive higher priority.
- The mobile teams are considered a transition strategy and need to be maintained until the network's coverage of health services cover the target population in more distant villages. The outreach will continue to be a complementary strategy to vaccination by fixed posts.

9.4. 10. INTRODUCTION OF NEW VACCINES

The introduction of new vaccines must be respond to prioritization of preventable diseases of epidemiological importance in the burden of mortality and morbidity of the country, as well as long-term financial sustainability to ensure its uninterrupted supply of vaccines introduced.

The MoH intends to sequential introduction nation wide the Pneumo vaccine in 2012 and Rotavirus vaccine in 2013 given its importance to accelerate the reduction of children of under 5 year's old mortality rate. The planned preparatory activities are detailed in the annex 1 and include:

- National assessment of effective vaccine and cold chain stores management (EVM)
- Increased storage capacity of the positive cold chain at all levels;
- Update of technical standards and records of information system;
- Acreditation by WHO/AFRO of "Sentinel Surveillance Site" for bacterial Pediatrics Meningitis and Acute Diarrhea" in the Paediatric Hospital of Luanda;
- Training of health staff and close supervision
- Post introduction evaluation

Financial sustainability will be given by the national government. To cover the costs of new vaccines introduction these estimated costs should be added to the budget line of vaccines and supplies in the budget of the MoH.

9.5. IMMUNIZATION SAFETY

Vaccine Regulatory Authority will be created based on the Drug and Equipment Directorate or the National Institute of Public Health for the purpose of recommending vaccine provider qualified laboratories, authorize the registration of new vaccines, receive and investigate reports of adverse events following immunization.

To enhance safe injection practices and proper disposal of immunization waste will be updated safe injections plan, will produce and distribute promotional and educational material.. For the final disposal of immunization waste incinerators will gradually acquired funding by municipal administrations and partners support to gradually cover the 164 municipalities and commune's densely populated over 300,000 inhabitants.. Physical structures to mount the incinerators will be built en strategic sites in each municipality. The fuel for its operation will be provided by the municipal budget.

Further training will be done on the surveillance of adverse events following immunization (AEFI), registration forms and investigation guides will be updated. The adverse events following immunization will be included in the national list of mandatory notifiable diseases and events. Notification of AEFI will be performed by health personnel and by the affected families. For the investigation of severe cases will be constituted ad hoc team constituted by surveillance officer, clinician and responsible

evolved health facility. The reports will be put into consideration of the Vaccine Regulatory Authority and the ad hoc national committee on adverse events, which should be created.

For quality control of vaccines administered at central and provincial cold rooms will be equipped with electronic temperature control with SMS alert system to communicate by phone the people responsible for their care. It also implemented gradually in all the provinces the computerized stock management with alerts on expiry dates and minimum stock.

Will be reinforced the training and supervision of the technique of preparation and administration of vaccines, and dispose syringes and material used, and the daily monitoring of temperature, so it will be used temperature monitors in all the vaccine deliveries to provinces and municipalities.

9.6. EPIDEMIOLOGICAL SURVEILLANCE AND DATA QUALITY

Surveillance of vaccine preventable diseases will continue to be held in the context of integrated disease surveillance and response. Will be emphasized the capacity building of provincial and municipal teams in the basic content disease surveillance, epidemiologic investigation of cases and outbreaks and electronic managing of data. The central level continue producing and distributing the weekly integrated epidemiological surveillance bulletin.

The case-based surveillance will be reinforced around the active surveillance teams who regularly visit health facilities and sites of surveillance in communities. The investigation of cases of acute flaccid paralysis and suspected cases of measles, neonatal tetanus and yellow fever continued to be conducted with special highlighting on investigation of measles, tetanus and yellow fever suspect cases that currently has low performance.

The surveillance of diseases caused by Haemophilus influenza type b, Streptococcus pneumonia and rotavirus will be held initially in Luanda Paediatric de Hospital and after will be extended to other hospitals with human resources, equipment and routine collection of samples from cerebrospinal fluid of paediatric meningitis, pleural exudates of empiema and stool samples from cases of acute severe diarrhoea. The Paediatric Hospital laboratory has the capacity to detect specific antigens, requires molecular biology laboratory of reference for serotype identification.

The quarterly bulletin on immunization will continue to distribute to decision levels and partners. The weekly Polio bulletin and monthly measles bulletin continue to be distributed over the Internet at the technical level.

To improve the reliability of immunization administrative data will be generalized vaccination biannual audit of data quality in a sample of health units, municipalities and provinces. Basic criteria to routinely check the quality of immunization data are included in the supervision checklist.

From 2012 with the purpose of reducing unintended errors, adjustments will be introduced in EPI subinformation system, namely: the introduction of nominal instead of tally sheet and will added in the municipal monthly report the data by health facilities.

Will be pay attention to enhance the monthly monitoring of completeness and timeliness of municipal reports on routine immunization at the provincial and national levels. During the implementation of this plan will encouraged the widespread electronic data processing at all provinces and municipalities that are provided with computer equipment, using the package DVD / MT recommended by WHO.

9.7. ERADICATION AND CONTROL OF VACCINE PREVENTABLE DISEASES

9.7.1 POLIO ERADICATION INITIATIVE

The Polio Eradication Initiative (PEI) establishes strategies that combine activities with immediate effect with activities to create conditions to maintain the gains. It comprises three basic strategies:

- Polio supplementary vaccination activities to children under 5 years to interrupt transmission;
- Strengthening of routine immunization, to increase the level of immunity of the population;
- Surveillance of acute flaccid paralysis (AFP) to detect the circulation of WPV and guide the actions.

Every year the MoH conduct 3-4 Polio national vaccination campaigns (NIDs) and Sub-NIDs to respond to new cases of Wild Poliovirus. A major problem in implementing the PEI is the poor quality of vaccination campaigns that miss more than 5% of children under 5 years not vaccinated.

The strategies being used to improve the quality of vaccination campaigns include:

- Extensive involvement and political support from national and provincial government
- Participation of implementing partners and donors in the ICC chaired by the Vice-Minister /Minister of Health
- Decentralization at the local level with broad involvement of municipal and communal administrations:
    - Coordination, monitoring and evaluation activities
    - Mobilization of the presidents of neighbourhoods, chiefs of blocks and heads of villages for the recruitment of local vaccinators
    - Provide transportation
    - Financing of operational activities of the campaigns
- Participation of traditional authorities, religious leaders, youth organizations, public and private institutions, NGOs in social mobilization and the promotion of routine immunization and campaigns
- Participation of the Armed Forces in hard to reach areas
- Independent monitoring of the quality of vaccination campaigns

9.7.2 MEASLES CONTROL

For effective control of measles MoH is following the WHO / AFRO strategic guidelines consisting of:

- Increasing routine immunization coverage of (1st dose) for up to 90%
- Conducting national immunization campaigns targeting children aged 9 months to under 5 years old, every 2 to 3 years depending on the accumulation of susceptible coverage ≥95%
- Strengthening Case-based surveillance and laboratory diagnosis
- Administration of vitamin A to all cases and appropriate antibiotics administration in complications.

The main problem of previous campaigns was that more than third of the municipalities did not reach coverage over 95%, despite the great demand of the population for this vaccine. One factor that seems to have an influence is the jointly conduction the vaccination of women of childbearing age that difficult the proper coverage the target group of children 9-59 months. For this reason the next following campaigns will include only the population within the measles target group.

Vaccination campaigns will be conducted by trained health personnel by concentration: fix post outreach and mobile team, utilizing the basic organizational structure and resources developed for Polio campaigns..

In order to better utilization available human and cold chain resources the campaign will take place in two phases: the first phase 3days duration will vaccinate children in urban areas and in the second phase immediately to preceding phase will cover the rural population by mobile teams with the duration of 10 to 14 days. To take in advantage the logistics of the campaign, will also administrated vitamin A and deworming Albendazol..

During the implementation of the campaign will be promoted to the reporting and investigation of possible adverse events following immunization. Also the quality and coverage will be monitored by independent monitors to identify areas with low coverage to recap.

9.7.3 NEONATAL TETANUS ELIMINATION

Knowledge of the incidence of neonatal tetanus in the country with the available data is not reliable given the multiple gaps in the surveillance of cases. It is estimated that there is a high underreporting of cases, partly due to a missing / incomplete reporting of health services and another because that nearly 40% of births take place outside of health services, cultural practices still prevailing in favour of occurrence of neonatal tetanus.

In response to this problem, the MoH decided in the last three years will implement two-phases of national campaign of vaccination of childbearing age women achieving coverage of 80% in majority of municipalities. Some peripheral areas of urban municipalities and rural districts continue to report cases.

Meantime the country has made significant progress over the last three years to increase coverage of routine vaccination with TT vaccine in pregnant women, whereby the implementation of expensive national vaccination campaigns women of childbearing age is not recommended because the current problem is focal will addressed by stratification using standard WHO operational criteria to implement local campaigns that accelerate the virtual elimination of maternal and neonatal tetanus.

The strategy to improve the NNT surveillance performance is the training of operational staff to recognize and report cases of NNT, the strengthening of active surveillance at health units and community and epidemiological investigation of all reported cases to recognize the causes of miss vaccination of the mothers of NNT cases and local risk factors.

10. MONITORING SUPERVISION AND EVALUATION

The EPI Multi-year plan 2011-2015 implementation will be assessed during the annual evaluation meetings with provincial municipalities and subsequent annual evaluation meetings at central level with the provincial teams to establish the achievements regarding the 25 outputs and five outcomes and for introduce corrective actions. The monitoring process includes:

- Process indicators will be monitored monthly (see Annex No. 2) during the meetings of the ICC. The feedback will be conducted through the quarterly immunization bulletin.

- Every first week of May of each year will be implemented the assessment on Effective Management of Vaccines and Stores.
- Every six months they will implement internal audit data quality of routine immunization in a sample of provinces, municipalities and health facilities.
- Surveys of immunization coverage will be implemented annually in municipalities with questioned coverage data.
- Field assessments one month after each introduced new vaccine will be made.
- Informs the management of the supply and financial reports of government and partners EPI funds will be held quarterly during the meetings of the ICC.
- In 2013 will carried out an external EPI evaluation field visits and examination of documentation. Random sample immunization coverage survey will be implemented including segregation of gender variables.

11 BUDGET EPI MULTI-YEAR PLAN

The estimated budget for implementation the plan by budget categories shows below.

Table 24 Estimated budget EPI Multiyear. Angola, 2010-2015 (in USD)

cMYP Component USD	2010	2011	2012	2013	2014	2015	Total 2011 - 2015
	US$	US$	US$	US$	US$	US$	US$
Vaccine Supply and Logistics	$12.926.571	$13.321.950	$26.658.895	$34.535.098	$32.823.719	$32.374.857	$139.714.518
Service Delivery	$2.702.021	$3.066.282	$3.261.439	$3.527.641	$3.870.153	$4.197.015	$17.922.530
Advocacy and Communication	$106.300	$404.250	$446.513	$358.864	$218.791	$229.731	$1.658.148
Monitoring and Disease Surveillance	$1.200.800	$1.302.718	$1.391.133	$1.485.687	$1.586.812	$1.694.976	$7.461.326
Programme Management	$691.040	$1.221.414	$1.047.086	$1.061.499	$956.224	$1.120.364	$5.406.588
Supplemental Immunization Activities	$14.471.126	$20.752.853	$13.319.932	$23.520.927	$15.132.868	$26.805.705	$99.532.285
Shared Health Systems Costs	$9.871.139	$11.002.493	$12.252.689	$13.606.557	$15.108.787	$16.681.411	$68.651.938
	$41.968.997	**$51.071.960**	**$58.377.687**	**$78.096.272**	**$69.697.354**	**$83.104.059**	**$340.347.331**

Table 25. **Objectives strategies and activities by system components (annex 1)**

Program objective	Strategies	Key activities	Chronogramme				
1. Control, Elimination and Eradication of diseases			**2011**	**2012**	**2013**	**2014**	**2015**
1.1 Interrupt WPV transmission countrywide by the end of 2011	Quality Supplemental Vaccination house-to-house for children under 5 years of age	1. Conduct 3 NIDs and 3 SNIDs per year	**X**	**X**	**X**	**X**	**X**
		2. Distribute vitamin A and Albendazol during NIDs	**X**	**X**	**X**	**X**	**X**
		3. Social mobilisation	**X**	**X**	**X**	**X**	**X**
	AFP surveillance	1. Active surveillance at health units	**X**	**X**	**X**	**X**	**X**
		2. Active surveillance at the community	**X**	**X**	**X**	**X**	**X**
	Routine vaccination	3. Vaccination during the fixed posts, outreach and mobile strategies	**X**	**X**	**X**	**X**	**X**
1.2To Reduce morbidity and mortality due to measles by 90% in 2015	Integrated follow-up vaccination campaign for under 5 years children	1.Vaccination campagnes and follow-up	**X**		**X**		**X**
		2. Vitamin A, Albendazol and impregnated bed nets distribution	**X**			**X**	
		3.Mosquitos net distribution	**X**			**X**	
	Routine vaccination	3. Expand RED strategy(No of municipalities)	**97**	**120**	**140**	**150**	**164**
	Institutional and community case based	1. Case surveilance	**X**	**X**	**X**	**X**	**X**

	surveillance	2.Laboratorial diagnosis	X	X	X	X	X
1.3 MNT elimination by 2012	Supplemental vaccination with TT at national level	1. Supplemental vaccination in all municipalities	X				
	Case based surveillance and community based approach	2.Case based surveillance	X	X	X	X	X
Set up Rotavirus, Yellow fever, Hepatitis B and Hib surveillance	Surveillance of other immunopreventable diseases	1. Set up sentinel centres for Hib, S. Pneumonia and rotavirus surveillance	X	X	X	X	X
		2. Intensify surveillance for Yellow fever and hepatitis B	X	X	X	X	X
		2. Laboratorial diagnosis	X	X	X	X	X

Program objective	Strategies	Key activities	Chronogram				
			2011	2012	2013	2014	2015
1. Increase and maintain a routine vaccination coverage at 95%	Advocacy Social mobilisation Interpersonal communication mass media (radio e TV)	1. Advocacy at provincial and municipal level	X	X	X	X	X
		2. IEC by health personnel	X	X	X	X	X
		3. Interpersonal communication with community agent	X	X	X	X	X
		4. Messages diffusion through mass media	X	X	X	X	X

2. Interrupt wpv transmission countrywide by the end 2011	Advocacy Social mobilisation Interpersonal communication Mass media (radio and TV)	1. Advocacy at provincial and municipal levels	**X**	**X**	**X**	**X**	**X**
		2.Interpersonnel communication through community agents	**X**	**X**	**X**	**X**	**X**
		3. Communication and mobilisation for municipalities at risk	**X**	**X**	**X**	**X**	**X**
		3. Diffusion of the messages through mass media	**X**	**X**	**X**	**X**	**X**
3. **To** Reduce morbidity and mortality due to measles by 90% in 2015	Advocacy and social mobilisation of authorities, , traditional and religious leaders, interpersonal communication for vaccination purpose and other intervention and information and motivation by radio and TV.	1. Advocacy at provincial and municipal level		**X**			**X**
		2. Interpersonal communication through community agents.		**X**			**X**
		3.Diffusion of messages through mass media		**X**			**X**
4. MNT elimination by 2012	Advocacy and social mobilisation of authorities, , traditional and religious leaders, interpersonal communication for vaccination purpose and other intervention and information and motivation by radio and TV.	1. Advocacy at provincial and municipal level	**X**	**X**			
		2. Interpersonal communication through community agents	**X**	**X**			

Program objective	Strategies	Key activities	Chronogram				
			2011	2012	2013	2014	2015
Increase and maintain the rourine vaccination coverage by 95%	Increasing the cold chain capacity at central and provincial level	1.Cold chain and vaccine effective management assessment	X	X	X	X	X
		2.Purchase of traditional vaccines and vaccination material	X	X	X	X	X
		3. Construction of the cold room at the national level	X				
		4. Construction of the central storage for EPI	X				
		6. Construction of 2 cold rooms in Luanda and Benguela		X			
		7. Construction of 2 cold rooms (Huila, Huambo)			X		
		8. Construction of 2 cold chain of two rooms (Malange, Uige)				X	
		9. Construction of 2 cold room (L.Norte, K.Sul)					X
		10.Developpement o of cold chain maintenance and incinerators	X	X			
		11. Capacity building for technicians cold for technician at central and provincial	X		X		X
		1. Purchase and distribution of the cold chain	X	X	X		

	Broaden and maintenance of cold chain at municipal and health units	equipments to provincial level.					
		2.Purchase and distribution of the cold chain at municipal level	**X**	**X**	**X**	**X**	**X**
		3. Purchase and distribution of the cold chain equipments for health units	**X**	**X**	**X**	**X**	**X**
		4. Purchase and distribution of spears pieces	**X**	**X**	**X**	**X**	**X**
		5. Capacity building for logisticians/cold chain technicians at the municipalities					
	Strengthening the logistics capacity for the program implementation	1.Purchase of a car for the central level	**X**				
		2. Acquisition of 2 freezer trucks		**X**			
		3. Acquisition of cars for the provinces		**X**	**X**	**X**	**X**
		4.Purchase of 200 motorcycles for municipalities	**X**	**X**	**X**	**X**	**X**
	Safe vaccine wastage disposal	1. Purchase of 164 incinerators for vaccination wastage disposal	**9**	**71**	**50**	**43**	

		1. Annual review meetings	X	X	X	X	X
Assessment process and the program activities results	Annual meetings and field assessment	2. International quality assessment			X		X
		3International surveillance assessment				X	
	Coordination and general monitoring of the program,	1. Validation of the polio transmission interruption and tetanus elimination	X	X	X	X	X
		4. carry out operational research s plan	X	X	X	X	X
Planning and coordination of the program financial resources for the program and improve its efficient use	Strengthening planning capacity at all levels	1.Mobilisation of OGE for covering vaccines` costs for routine vaccination	X	X	X	X	X
		2Creation of operational provincial and municipalities` plans	X	X	X	X	X
	Financial resources mobilisation and budget implementation monitoring	2. Mobilisation of OGE resources for co-financing the new vaccines	X	X	X	X	X
		1. Provide health staff for routine immunization	X				
	Strengthening technical and operational capacity at central level	3.Mobilisation of provincial governments and municipalities administrations for the operational expenditures	X	X	X	X	X
		2. Continuous capacity building	X	X	X	X	X
		3.Training on middle level management for intermediary managers (MLM/RED)		X	X	X	X
		4. New partners incorporation	X	X	X	X	X
		5. Budget quarterly monitoring	X	X	X	X	X
		1. Development of the integrated information system	X	X	X	X	X
Follow-up and improvement of the program performance indicators	Integration, information and feed back	2.Computing of the information system at central and provincial level					
		3. Formative supervision by level	X	X	X	X	X
		4. Meetings for performance monitoring at all levels	X	X	X	X	X

12. COSTING AND FINANCING ANALYSIS

The first African country oil producer, Angolan economy strongly depends on the market-price of the black gold and gas in about 60%, had soundly experienced the consequences of the international market-price variations and a fall in a U S dollar rate on its economy between 2009 and 2010.

The data used in this cost and financing analysis of the cMYP 2011-2015 has been obtained from different sources, some from the national statistics institutions an others from the international organizations publications, namely the World Health Organization (WHO) and The African Development Bank (ADB)

- Thus, The data related to national accounts, namely Gross Domestic Product per capita (GDP/hab) has been obtained from the last statistics of the African Development Bank as of March 2010 with a average increase of about 7% per year.
- The demographic statistics has been obtained from the IBEP publications
- The data related to vaccine management has been obtained from the EPI database
- The data related to the staff has been obtained from the management and finance services of the Ministry of Health
- The data related to the logistics and cold chain and transport as well as vaccine management has been obtained from the preliminary vaccine management assessment report carried out in 2011.

All these data together and entered led to determine

(i) The Angolan EPI costs for the year 2010, considered as reference year due to good results and already consolidated,

(ii) The impact of the introduction of the new vaccines PCV-13 (2012) and Rotavirus vaccine (2013) on the program costs, namely regarding the new vaccines, additional investments for cold chain materials and training of the staff

(iii) The available funding and the funds to be looked for as well as the analysis of the gaps and the financial sustainability strategies of the program, given that will pay for the total cost of the vaccines by 2017, according to the new GAVI rules.

12.1.The costs of the EPI in 2010

During the year 2010, the Government faced not only recrudescence of circulation of the wild poliovirus in the sub-region but also challenged for attainment of the first objective of the vision and strategies 2006-2015 for vaccination in the world (GIVS), which was to attain in 2010 a coverage rate of 90% for DTP 3 vaccination at national level and 80% in all districts.

In order to manage these challenges, the Government with the support from partners intensified the vaccination activities by organizing the national immunization days, as a result le vaccination performance was improved with DTP # coverage increased from 81% in 2009 according to the WHP/UNICEF best estimates to 90% in 20010.

The intensification of these activities as well as the outreach and mobile and strengthening of the fixed strategies at the health centres led to the additional resources in more than $37.000 USD.

Table 26. Needed resources for vaccination in Angola, in 2010

Baseline Indicators	2010
Total Immunization Expenditures	$ 41.968.997
Campaigns	$ 14,471,126
Routine Immunization only	$ 27,497,871
per Penta-3 child	$26,7
% Vaccines and supplies	40%
TOTAL	$ 41.968.997

Source: tallysheet 5 costing tool for cMYP

Three main lessons to be learned from this table.

- The importance of the supplemental vaccination activities by organizing the national immunization days with about 34% of the total costs of the program in 2010, whereas the routine activities account for 66% of this cost.
- The importance of the vaccines and injection materials, which for the routine represents 40% of the costs.
- Finally the high cost of a child completely vaccinated with Penta-3, which is about $27 USD, what represents a challenge in the future of the country.

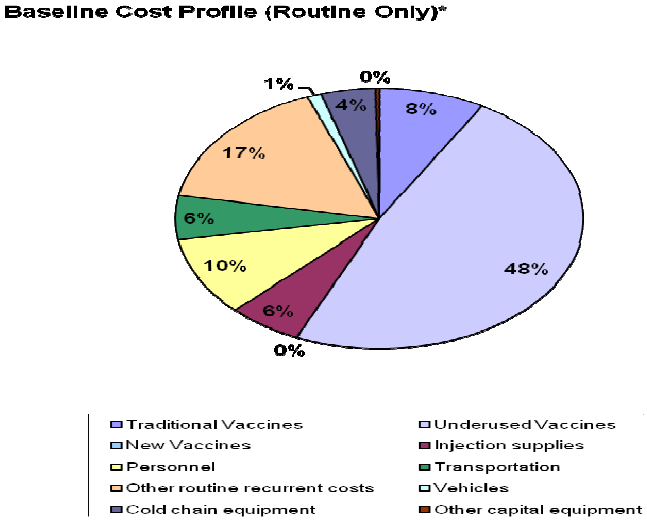


Figure 17.

12.2.The program financing in 2010

Regarding financing, it is suitable to notice that the vaccination financing in Angola except the underused vaccines, namely Pentavalent supplied by GAVI, the others expenditures related to the vaccination, namely supply of vaccines, its distribution and the operational costs of the campaigns are covered mostly by the government, namely the decentralised budgets. Thus, in 2010, the government financing covered more than 50 % of vaccination related expenditures.

The financing distribution as it is shown in the graph below, demonstrate a clear predominance of the public financing, namely of the state with about 45% of the total if we take into account the decentralised entities

This financing tendency is followed by GAVI 46 %, and WHO 11% and then UNICEF 5%.

It is good to point out also that in Angola the oil company participate in the vaccination financing, which is an opportunity to explore. In 2010, the company ESSO participated with 3% of vaccination expenditure. The government expenditure was particularly related to the traditional vaccines supply, vaccine delivery and staff and one part of operational costs.

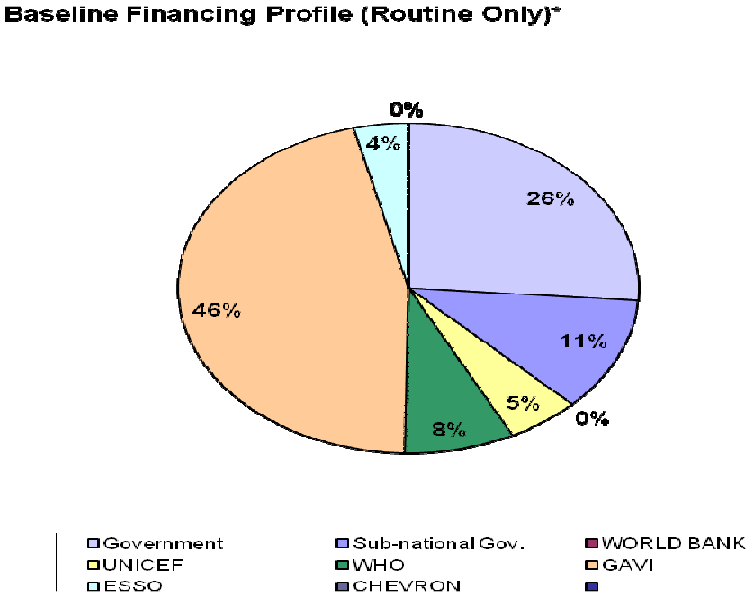
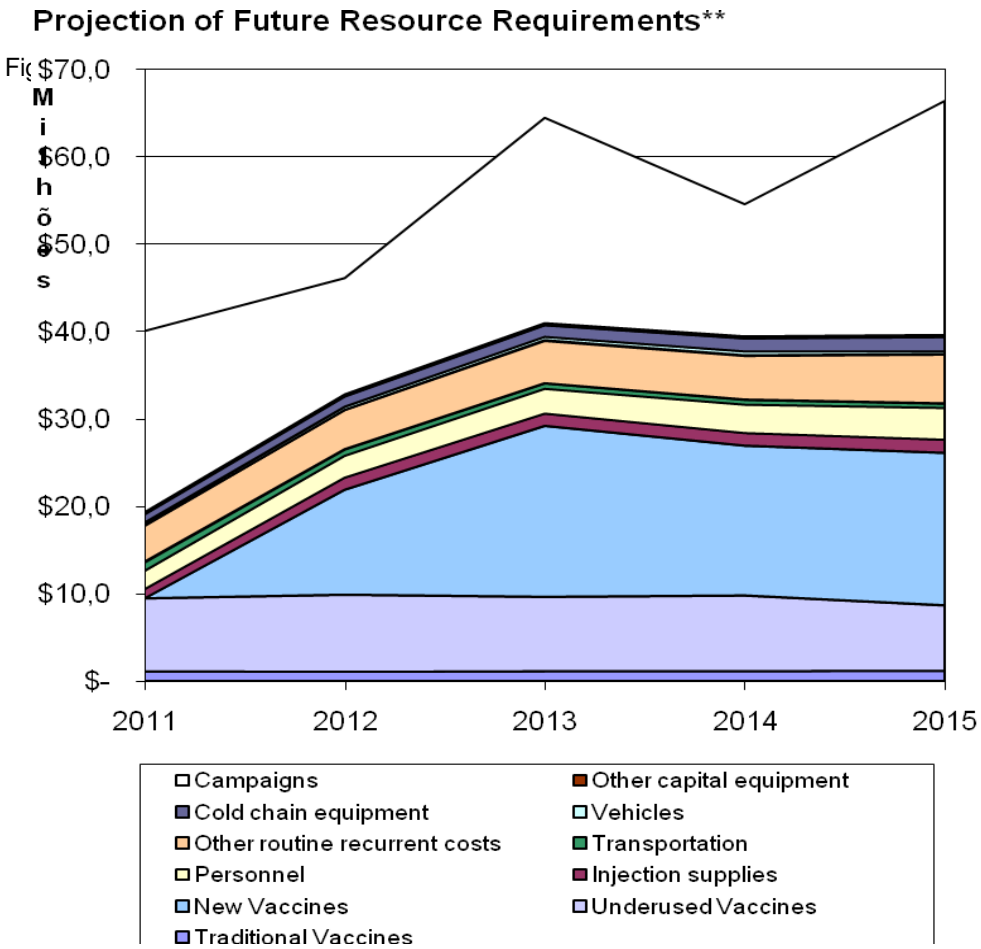


Fig 18

12.3.The needed resources for the future

The Angolan Government intends to introduce in the future two new vaccines, namely Pneumoccocal vaccine in 2012 and the Rotavirus vaccine in 2013. It is clear that these new vaccines will increase the cost of the program not only because of the cost of the vaccines but also the implications on the storage capacity, training of the staff, and communication for the people to adhere to the new vaccines.

The major challenge for the country is that it is no longer eligible to GAVI and the total costs of the new vaccines will be afforded by the country for a period of 5 years, starting from 2012 or 2017.



12.4. The needed resources financing

According to the available data, the ensured financing represents about 60% of the average of the financing needed between 2012 and 2016. If in terms of vaccines supply it doesn't look like a problem, the county should start thinking of the other alternatives from 2012.

The tendency of the ensured financing, in other words, sustainable sources will lead to on average one gap of more than 30% between 2013 and 2016 what will be harmful for the program.

These gaps are essentially :

- ❖ Supplementary immunization activities
- ❖ The expenditure related to purchase of the new vehicles for supervision and the mobile teams.
- ❖ Strengthening the cold chain at the health centres level

Future Secure Financing and Gaps

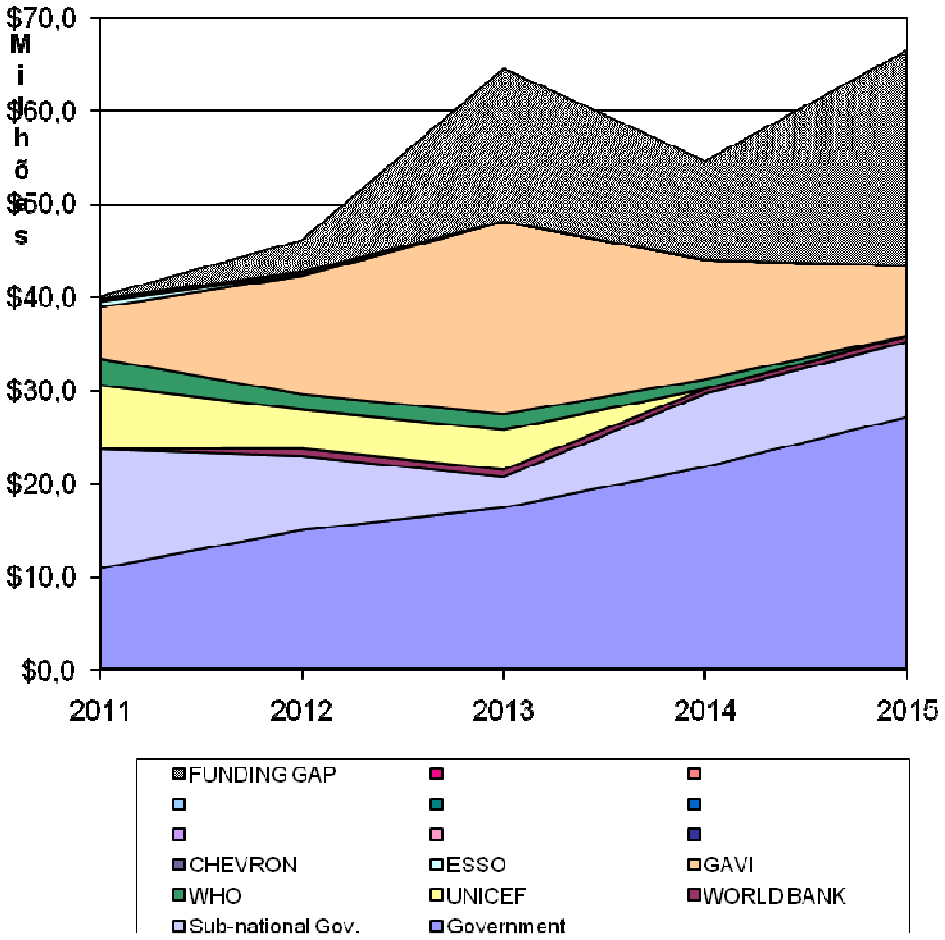


Figure 20.

❖ Nevertheless, these concerns should be moderated with the support of the oil Companies to the vaccination activities, to which the Government would present this cMYP during a round table on vaccination financing in the context of emergency plan. If the Government succeed to mobilize the adherence of oil Companies and institutions such as European Union, during the round table, the financing considered as probable would considerable reduce the financing gap as it is shown in the graph below.

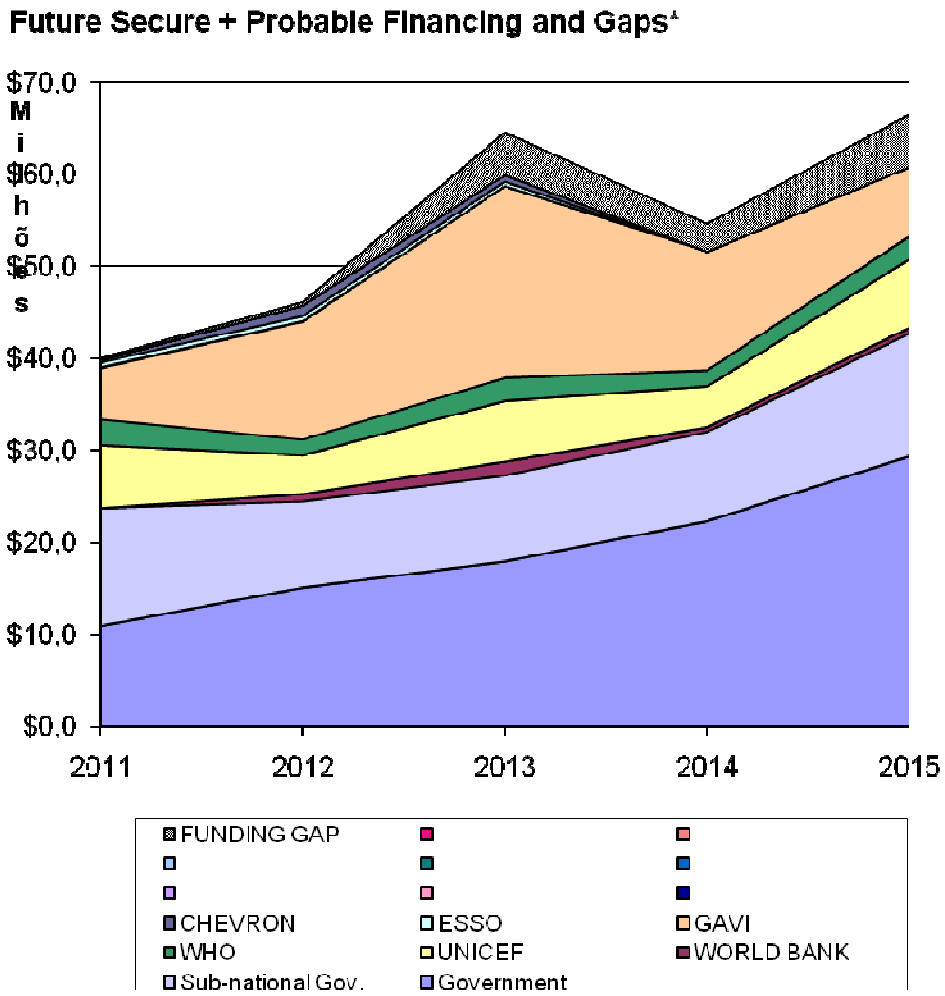


Figure 21.

12.5.The Financial sustainability analysis.

According to the financial sustainability, Angola can afford the vaccination expenses after GAVI, either by mobilising the population to adhere to the idea of a creation of a national vaccination fund, which will be afforded by voluntary contributions, or by establishing of a special taxes according to the level of revenue and what the vaccination expenditures represent regarding a GDP.

Table 27. Indicators of financial sustainability of the EPI in Angola

Item	2011	2012	2013	2014	2015
GDP per capita ($US)	5129	5428	5872	6283	6723
Expenditures in % of GDP	0,04	0,03	0,05	0,03	0,04
Immunization expenditure per capita	$2,00	$2,18	$2,92	$2,37	$2,81

Annex no. 1 Introduction of Pneumo and Rotavírus vaccine implementation chronogram. Angola 2011-2013

No.	Activities	Responsibility	2011			2012				2013			
			T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
1	National EVM evaluation	EPI/Partners	May										
2	Multi Year plan Approval	ICC	May										
3	Mobilization of complementary funds for cold chain and logistics	MoH/Partners	- June										
4	Shipment of cold rooms forcentral level	UNICEF		Jul-Oct					Jul-Oct				
5	Installation of cold rooms at central level	MoH			Nov-Dez				Nov-Dez				
6	Shipment of cold rooms for provincial level	UNICEF			Dez- Mar				Dez- Mar				
7	Installation of cold rooms at provincial level	Provincial Gov.					Apr			Apr			
8	Procurement of Fridges at provincial level	UNICEF				Jan- Apr			Dez- Mar				
9	Distribution of cold chain materials to provinces	National EPI.					May			Apr			
10	Shipment of cold chain equipment for health facilities	UNICEF				Jan-Apr				Jan-Apr			
11	Distribution of cold chain equipments to health facilities	MoH					May				May		
12	Update norms and information system	National EPI		July- Sept									
13	Acreditation of sentinel site	National EPI			Oct								
14	Training of national and provincial staff	EPI/Partners			Dez								
15	Training of operation staff	PDH				Jan- May							
16	Gradual introduction of pneumo vaccine	PDH-National EPI					Jun-Aug						
17	Social communication campaign	GPS-UNICEF					Jun-Sept						
18	Post introduction of pneumo vaccine evaluation	National EPI/partners							Nov				
19	Rotavírus training	PDH-National EPI								Jan-Apr			
20	Gradual introduction of Rotavirus vaccine	PDH-National EPI										Jul - Sept	
21	Social communication campaign	Health propotion/UNICEF										Jul - Oct	
22	Post introduction of Rotavirus vaccine evaluation	National EPI/partners											Oct