THE STATE OF ERITREA
Ministry of Health

DRAFT -1

Expanded Programmer on Immunization
Comprehensive Multi-Year Plan
(2012-2016)

Foreword

The Eritrean Expanded Programme on Immunization has, since its inception, been committed to the provision of protection from vaccine preventable diseases. To this end the Ministry of Health of the Government of Eritrea, which is responsible for the successful management of the resources invested in vaccination, has sought continual expansion in the geographic provision of vaccination nationwide even in times of sustained conflict.

The Government of Eritrea, in collaboration with donor partners has sought to increase the range of vaccines to reduce the unnecessary suffering of the most vulnerable.

The successful introduction of DTP-HepB vaccine in 2002, and submission and implementation of The Financial Sustainability Plan presented to GAVI in 2004 further enhanced the EPI programme. In order to build on the improvements made, the Government of Eritrea, in an effort to further strengthen immunization, applied to Global Alliance on Vaccines and Immunization (GAVI) in 2005 for additional support to introduce the Pentavalent vaccine in 2008.

The multi year plan central to this document articulates the mission, objectives, strategies and action plans for successful implementation of the policy of the Ministry of Health to ensure equitable access to health services. The multi year plan states the actions needed for the improvement of provision of EPI services from 2012-2016.

The framework contained in this document will be the foundation for all zonal, and sub- zonal level planning and implementation of immunization activities. The overall goal is to further improve on the excellent service provision, to ensure that best practice is maintained, and to support implementation efforts that lead toward reaching the ultimate goal of financial sustainability.

The Ministry of Health, the donor partners and the ICC have reviewed the document and pledged their support. It is envisaged that GAVI will view our plan favorably and support our efforts with the introduction of the Rota virus and MCV2 vaccines in 2012.

The Government of Eritrea extends their gratitude to their donor partners and stakeholders for their input of financial resources and managerial and technical skill support. We look forward to your continued support as Eritrea strives to improve and achieve the challenging goals we set ourselves.

Executive Summary

This comprehensive Multi Year Plan (cMYP) has been completed as a requirement for extended GAVI support for the EPI through the Ministry of Health of the Government of Eritrea.

The Multi Year Plan contains a brief review of the country and the current economic situation. The organization of health services provision is outlined and a brief history of the EPI programme is provided.

A comprehensive review of all aspects of the EPI programme was conducted in August 2006. A thorough and critical analysis of the coverage, service delivery, vaccine supply and logistics, advocacy, surveillance and monitoring, programme management and the ability of the EPI to secure sustainable financing was conducted.

On completion of the situation analysis an assessment of the Strengths and Weaknesses was conducted to determine how existing best practice could be maintained and where future management initiatives must be undertaken to enhance service delivery.

Using the Comprehensive Multi Year Planning Tool (cMYP) a full costing and financing of all aspects of EPI was conducted reviewing the cost of vaccines, personnel, transport, cold chain and the provision of shared services with a view to ascertaining estimated total cost for the period 2012-2016.

Analysis of current and future financing and the sustainability of the current activities of the EPI were assessed. The conclusion drawn is that the EPI at present is heavily dependant on donor support and that the Government of Eritrea needs to increase the resource allocation and/or broaden the funding sources for EPI to continue to achieve its objectives.

The final section sets out a comprehensive plan for 2012 setting out objectives and strategies for strengthening current service provision by increasing coverage, improvement of the cold chain, and provision of training for the introduction of the Rota virus and MCV2 in 2012.

The comprehensive Multi Year Plan sets out what needs to be done to strengthen EPI service provision at national, zonal, sub-zonal and operational level. The cMYP will be the working document with the overall goal of the improvement of the lives of the beneficiaries of vaccines. The investment in EPI is an investment in the greatest asset of Eritrea, its children, which are the nation's future.

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Acronyms and Abbreviations

Acronyms and Abbreviations	
AEFI	Adverse Event Following Immunisation
BCG	Bacille Calmette-Guérin (tuberculosis vaccine)
cMYP	Comprehensive Multi Year Plan
CDC	Communicable Diseases Control
CBOs	Community Based Organizations
DPT-HepB-Hib	Diphtheria, Pertusis, Tetanus Hepatitis B and Homophiles influenza type b
EDHS	Eritrean Demographic & Health Survey
EPI	Expanded Program on Immunization
FSP	Financial Sustainability Plan
FIC	Fully Immunized Child
GAVI/VF	Global Alliance for Vaccines and Immunization/Vaccine Funds
GIVS	Global Immunization Vision and Strategies
GDP	Gross Domestic Product
GMP	Growth Monitoring Program
GNP	Gross National Product
GoE	Government of Eritrea
HAMSET	HIV/AIDS, Malaria, Sexually Transmitted Diseases and Tuberculosis
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
Hib	Hemophillus influenzae type b
HMIS	Health Management Information System
HPC	Health Promotion Centre
ICC	Inter-Agency Coordinating Committee
IDSR	Integrated Disease Surveillance & Response
IEC	Information Education and Communication
IMCI	Integrated management of Child Illnesses
JICA	Japan International Cooperation Agency
MCH	Maternal & Child Health
MOH	Ministry of Health
MoND	Ministry of National Development
MNT	Maternal Neonatal Tetanus
NCC	National Certification Committee (For polio)
NGOs	Non – Governmental Organizations
NHL	National Health Laboratory
NIDs	National Immunization Days
NPEC	National Polio Expert Committee
NRA	National Regulatory Authority

Acronyms and Abbreviations

NTLC	National Task Force for laboratory Containment (of WPV)
OPV	Oral Polio Vaccine
PHC	Primary Health Care
PRSP	Poverty Reduction Strategy Paper
RED	Reach Every District
RH	Reproductive Health
SOS	Sustaining Outreach Services
SIAs	Supplementary Immunization Activities
SNIDs	Sub National Immunization Days
STDs	Sexually Transmitted Diseases
SWAP	Sector Wide Approach Program
TT	Tetanus Toxoid
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
WB	World Bank
WHO	World Health Organization
WPV	Wild Polio Virus

5. INTRODUCTION

5.1 Country Profile

Eritrea is located in the Horn of Africa, between latitudes 12 degrees 42'N and 18 degrees 2'N and longitudes 36 degrees 30'E to 43 degrees 20'E. It is bounded by the Sudan to the North and West, the Red Sea to the East, Ethiopia to the South and the Republic of Djibouti to the Southeast. The country has a surface area of about 124,000 square kilometers with four distinct topographic regions: central highlands (2000 meters above sea level), western lowlands (1000 meters above sea level), eastern lowlands (500 meters above sea level) and coastal lands (500 meters above sea level).

Administratively the country is divided into six administrative zones known as Zobas: Gash Barka (GB), Anseba, Debub, Debubawi Keyh Bahri (DKB), Maekel and Semenawi Kehy Bahri (SKB) Zones, 58 sub zones, 715 administrative areas and 2,564 villages. No population census has not been carried in Eritrea, but based on a population estimate by the Ministry of Local Government (2001) the projected total population of Eritrea is approximately 3,615,000 for 2011. Almost one third of the population is in the age range of less than 15 years old. The population of females aged 15 - 45 and children under 5 years old are 20% and 15% respectively. This accounts for over one-third (35%) of the total population. The population is not uniformly distributed throughout the country.

5.2 Macro Economic Situation

The Eritrean Government inherited poor socio-economic conditions at the time of liberation in 1991. In 1994, the Government of Eritrea issued a comprehensive Macro Policy indicating the strategies for development, with high priority on food security; human resources development with education and health as key component, physical and social infrastructure development, and environmental restoration and protection. Following the issuance of the Macro Policy, the Government introduced institutional and legal frameworks that would create enabling business environment to stimulate private investment. The Government also followed liberal trade and investment policies. As a result of these business–friendly policies, the economy gained momentum and showed significant improvements during the periods 1992 to 1997, registering an annual GDP growth rate of 7%. The high GDP growth was partly explained by the peace and stability as well as the successful recovery program and liberal trade and other policies introduced by the Government of Eritrea.

However, in May 1998, the Ethiopian war of aggression on Eritrea, which began on the pretext of border conflict escalated into a devastating war. The war has inflicted heavy damages on the Eritrean economy. Investment made in agriculture in Zoba Debub and Gash-Barka was purposely destroyed by the enemies. The educational and health sectors were also looted and purpose fully damaged by the invading Ethiopian army. As a consequence, the country's economic growth declined during the 1999-2000 period.

Since the struggle for independence, the Government of Eritrea has realized that mobilization of one of Eritrea's main resources is, its people, a critical for accelerating the reconstruction process and the laying of the basis for a sustainable economic growth and development.

Table 1: Main Macroeconomic Indicators of Eritrea (This table to be updated and data up to 2010 to be inserted (Tedros with support of finance department

Macroeconomic Indicators	Year						
	2004	2005	2006	2007	2008	2009	2010
GDP constant factor cost (Millions of Nakfa)							
GDP Growth at Constant Factor cost							
GDP per capita in US$ Dollars							
Inflation							
Current external balance including official transfers as % of GDP							
External debt % of GDP							
External Debt service in % of export of G & S service							
Exchange Rate	13.5	13.5	13.5	15.0	15.0	15.0	15.0

The MOH of Eritrea, through its expanded program on immunization, is committed to the provision of cost effective immunization services to the whole target population. However, the program is operating within a general macroeconomic environment of low per capita income, where a large portion of the country's social and physical infrastructures were badly damaged by war of aggression, and need large investment for their reconstruction. Because of the competing demands by many sectors for resources, the health sector budget in general and EPI budget in particular has been low. This shows that the EPI program has been primarily dependent on external funding.

5.3 National Health System

Since independence in 1991, the Ministry of Health (MOH) has made significant progress in ensuring access to health care services in general and immunization services in particular, through restoration of health facilities damaged during the war. Currently, the MOH is operating 27 hospitals, 55 health centers, and 187 health stations. Eritrea has 216 medical doctors, 1012 nurses and nurse midwives, 42 Pharmacists, 23 sanitarians, 81 public health technicians, 275 laboratory technicians, 62 X-ray technicians and 2,172 Associate Nurses. The medical doctor population ratio is 1:16,000 while the ratio between nurses and the population is about 1:3,500 and that of health assistants is 1:1,600 (*HMIS 2010*).

Eritrea has consistently reduced child mortality by four per cent annually in the last decade. The successes are mainly attributed to efforts of Ministry of Health and its partners in the areas of successful malaria control, vaccine preventable diseases including measles elimination, improvement in prevention and case management of main childhood killer diseases (ARI, diarrhea, and malnutrition). Eritrea is one of the three Sub Saharan African countries on track to reach MDG 4.

The infant mortality rate (IMR) has dropped to 42 deaths per 1,000 live births in 2010 (a reduction from 72/1000 live births in 1995), and under-five mortality (U5MR) is 65 deaths per 1,000 live births in 2010 (a reduction from136/1000 live births in 1995). The neonatal mortality rate however has changed only marginally from 25/1000LB in 1995 to 23/1000LB in 2010. Neonatal mortality in Eritrea accounts for half of the infant mortality rate and about a quarter (27 per cent) of U5MR. Seventy per cent of the neonatal deaths occur within one week after birth.

In order to move expeditiously in the desired direction, the Ministry of Health has formulated the National Health Policy and the Health Sector Strategic Development Plan (HSSDP) and has revised its organizations structure. The main aim of the HSSDP and the forthcoming operational, medium term and long term action plan of the BHCP intervention packages, the zones and sub zones is to set objectives and identify the most cost effective means or strategies and activities of achieving the desired objectives.

The Eritrean Health System/sector comprises all institutions, structures and actors whose actions have the primary goal of achieving and sustaining good health. The role of government in health service provision and stewardship will continue to be vital for the foreseeable future.

5.4 - The Eritrea Expanded Programme on Immunization (EPI)

In Eritrea, EPI was launched in 1980. *N*oticeable progress in the program development and delivery of immunization services was only possible after independence in 1991. During the independence immunization service was provided in 45 health facilities at static and in 125 out reach sites, and immunization coverage for fully immunized <1yr children was 9.4%. Since independence, the National Programme on Immunization has made significant progress in developing and delivering of immunization services for children and women through routine immunization activities. In 2010 immunization was provide in 256 Gov. and 32 Private/NGO health facilities at static and 385 out-reach sites which shows 156% and 325% increase respectively. (HMIS 2010)

EPI is a Unit in the organizational structure of the MOH. In the EPI context, the MOH is responsible for policy standards, priority setting, and capacity building, and links with other stakeholders and donor partners for resource mobilization. To date, it is directly responsible to the Director of Family and Community Health Division within the Department of Health Services. At the Zoba level, the EPI falls under the Family and Community Health Division. EPI service delivery is integrated with other MCH services and it is delivered as a package in all health facilities.

The programme delivers immunization for children against eight vaccine preventable diseases namely – Tuberculosis, Diphtheria, Whooping Cough, Tetanus, Polio, Measles traditional vaccines and underused new vaccines, Hepatitis B & Homophiles influenza type B which are introduced in 2002 & 2008 respectively.

The EPI unit has a central cold chain store, and cold chain stores are also available at each of the Zoba. The Zoba cold chain stores collect vaccines from the central EPI cold chain store quarterly, and the health facilities collect vaccines from the Zoba cold chain stores monthly. Procurement of inputs such as vaccines and injection is entirely carried out by UNICEF. WHO provides support in the form of technical assistance such as training and surveillance activities. Both provide operational funds for routine and supplementary immunization activities. GAVI supports for new and under used vaccines and funds for ISS and injection safety.

Table 2: National Immunization Schedule, Eritrea

Vaccination for Infants			Women of child bearing age (15-49 years)		
Age	**Visit**	**Antigen**	**Visit**	**Interval**	**Antigen**
Birth	1	BCG, OPV0	1	0 (as early as possible)	TT1
6 weeks	2	Penta1 OPV1	2	4 weeks	TT2
10 weeks	3	Penta2 OPV2	3	6 months	TT3
14 weeks	4	Penta3 OPV3	4	1 year or subsequent pregnancy	TT4
9 months	5	Measles	5	1 year or subsequent pregnancy	TT5
6-59 months		Vitamin A Supplement	Every 6 months	PN mothers before 8 weeks	Vitamin A Supplement

6.1 The Mission, Goal and Objectives EPI

MISSION:-

Make immunization services accessible, affordable and available to all Eritrean children.

GOAL:-

Reduce mortality, morbidity and disability of vaccine preventable diseases, among the under five population to a level that they will be no longer a public health problem.

OVERALL OBJECTIVE

Increase immunization coverage by improving access and utilization of EPI services nationwide through effectively addressing problems affecting the various system components of the national EPI programme.

6.2 SPECIFIC OBJECTIVES for year 2012 – 2016:

1- By 2016, to achieve 90% valid Penta coverage at National, with at least 80% coverage in every district.
2- Maintained polio free status & achieve >90% valid coverage of OPV3
3- Achieve >90% valid Measles coverage at national level with at least 80% valid coverage in every district and sustain measles elimination status.
4- Sustain MNT elimination status.
5- Introduce Rota vaccine in 2012 and have 90% coverage.
6- Introduce Pneumoncoccal vaccine in 2015 and have 90% coverage.
7- Introduce second dose of measles (MCV2) in 2012 and reach at least 85% coverage of second dose of measles.
8- Reduce Pent 1- Pent 3 drop out rate to less than 10% in high risk areas (17% of hard to reach and low performing districts).
9- Achieve 95% Vit. "A" supplementation integrated with other services including routine EPI coverage
10- 60% of the health facilities with sufficient practice of waste management
11- 65% of districts with a sufficient number of supervisory/EPI field activity vehicles/motorbikes/bicycles in working condition
12- 90% of the health facilities will have at least two EPI trained health workers on safe vaccine administration and Cold chain management
13- Collect analysis and utilize quality data and provide timely report to the national, regional and sub regional level.
14- Conduct quarterly supervision and monitoring at national and zoba level
15- Review and document EPI programme each three years
16- Increase and sustain government and partners contribution to EPI
17- 85% of caretakers of children < 1yr understand the importance of routine immunization & when to return back for next immunization session.
18- Develop & operationalize national child survival communication Strategy that includes issues related to Rota virus, MCV2 and Pneumoncoccal vaccines.
19- 100% of surveillance reports expected, timely arrived from the districts and meets completeness criteria.
20- Strengthen the National Certification Committee and establish the National Task Force for Laboratory Containment (NTFL) of WPV.
21- 100% of the zobas develop contingency plan for cold chain management.
22- 100% of the zoba use computerized stock management of & EPI logistics.
23- 100% of Zobas (Districts) and 95% of Health facilities with adequate number of functional cold chain equipment.
24- Availability of cold chain equipments and spare parts for replacement and maintenance at national and zobal level.

7.1 SITUATION ANALYSIS OF THE NATIONAL EPI PROGRAMME

The Government of Eritrea and its partners are overcoming significant challenges to maintain one of the most successful immunization programmes in sub-Saharan Africa. Maternal and Neonatal Tetanus has been eliminated, polio is eradicated and measles is under control and elimination stage with a strong surveillance system in place.

Following the 2006 programme review and EPI coverage survey recommendations, the Ministry of Health will make EPI program review in 2011 and will revised the national EPI policy, prepared a five-year comprehensive multi-year plan (2012-2016) setting out goals and outlining strategies to increase immunization coverage rates. In 2009 Vaccine Management Assessment was carried out and in 2010 EPI coverage survey and cold chain assessment and inventory were conducted.

Over the past 5 years, the programme strived for further improvement in vaccination coverage for all antigens with a focus on coverage at zonal levels using proven strategies such as the Reaching Every District (RED) and Sustainable Outreach Services (SOS) approach integration of EPI with other health and community services in light of the Global Immunization Vision and Strategy (GIVS) which provide the overall strategic planning framework for the country programme as well as the targets set to achieve the Millennium Development Goals on reducing child mortality.

Eritrea has had no national census, which leads to unknown denominator. There is high discrepancy between reported administrative coverage and findings of EPI Coverage Survey 2009 confirmed by findings of Eritrean Population Health Survey (EPHS) 2010.

The reported administrative coverage shows a low and declining trend of coverage of all antigens. While the National EPI coverage survey carried out in November - December 2009 to verify the reported immunization coverage, shows a high coverage. The EPI coverage survey identifies reasons for not immunizing and makes recommendations for strategies and interventions that will enhance the achievement and sustainability of EPI planned activities.

EPI coverage survey Dec 2009 found; national crude coverage for BCG 98 %; DPT1/OPV1 100%; DPT3/OPV3 98%; and Measles 96 %. National valid coverage by antigen (card only) was BCG 84 %; DPT1/OPV1 85%; DPT3/OPV3 83%; and Measles 75 %. Valid immunization coverage for all antigens at national and for all zobas is below the target of 90%. Ninety five percent of the children were fully immunized by card and history and 78% fully immunized by card only. While only 66% were fully immunized by one year (card only). In terms of gender equity, there was no significant difference between fully vaccinated girls and boys in all zobas. Utilization of immunization and health services was good, as indicated by crude DPT-1 to DPT-3 dropout rate of 1.58%

and BCG-Measles dropout rate of 3.4%, which is much lower that the target of 10%. Card retention was high (86%), though SRS had low card retention (64%). There was a proportion of children who received DPT-1 doses too early(6.6%) , as was the percentage of children that received measles vaccine before 9 months of age i.e. too early, (4.7%), with high occurrences in Debub (7.0%), NRS (6.42%) and Gash Barka (5.1%). This suggests that while the quality of the Immunization programme was high in terms of card retention, gender equality

The major sources (place) of child immunization were health center (36%), health station (28%), outreach (19%) and hospital (13%). The pattern was different in Debub and SRS where most of the children received their vaccination from outreaches. The main reasons for non-vaccination were "Place of immunization too far" (28.9%), "unaware of need for immunization" (20%) and "Child ill was not brought for immunization" (11.3%).

Mass measles vaccination

Sixty one percent of the parents/guardians reported that their children had been vaccinated during the mass measles campaign. The survey coverage is much lower than the coverage reported for the campaign at national level (82%) and for all the zobas. SRS (43%) and Debub (32%) had the lowest surveyed coverage. The high difference between reported and surveyed coverage may be attributed to recall bias due to the many interventions that were administered to the children during the measles campaign coupled with lack of documented evidence for children vaccinated during the campaign.

Vitamin A supplementation

Nationally, the crude coverage for vitamin A supplementation among 23 – 34 months old children was 94%. The crude coverage was above 90% in all the zobas except in SRS where the coverage was 79%. This is comparative to the crude DPT-HepB1 coverage implying that access to Vitamin A supplementation is good.

Neonatal Tetanus Risk Factors

Non-hospital delivery, low educational status, low parity and low prenatal care are major risk factors for neonatal tetanus. Most of the mothers of children aged 0-11 month had at least three antenatal care visits during the last pregnancy. About 6 of every 10 mothers had their deliveries outside hospitals/clinics and 8 of 10 children were born protected at birth (PAB) against neonatal tetanus. This indicates that the risk of neonatal tetanus is minimal in almost all the zobas except SRS.

Tetanus Toxoid immunization Programme Access, Utilization and Capacity

The capacity of the programme to deliver TT was low: national TT1 coverage of only 49.1% (by card), in spite of the fact that most of the mothers received antenatal care in health facilities. The rate further declines to 47.1% for TT2. Tetanus toxoid coverage by card and history among women was significantly higher (96.8% for TT1 and 93.9 % for TT2). The TT1-TT2 dropout rates were less than 10% in all the zobas.

This second EPI comprehensive multi year plan (2012- 2016) is developed in light of global, regional EPI targets and development, recommendations of Eritrea's vaccine management assessment, cold chain assessment, and EPI coverage review building on success of previous five years plan and lesson learnt from the process.

7.2 Vaccine Management Assessment (VMA) and Improvement Plan

Vaccine management assessment had been conducted in October 2009. indicators used for the assessment were: Vaccine arrival process, Vaccine storage temperature, Cold store capacity, Building, Cold chain equipment and transport, Maintenance of cold chain equipment, Stock management, Effective vaccine delivery, Correct diluents use for freeze dried vaccines, Effective VVM use, Multi-Dose Vial Policy and Vaccine wastage control.
Finding and recommendation for the assessment

At central level, 86%, the indicator is well above the expected standard mark, which goes to show that the programme is doing more than satisfactorily on this score. However, it must be pointed out that not all the sections of the VAR are filled in adequately (signatures, dates, names of person's in-charge, etc.). The originals of the VARs are not kept in the central store as expected but in a distant office. The clearing of the vaccines is done internally by a department of the Ministry of Health and is a straightforward exercise. The process is cut considerably short and the vaccines transit swiftly from the airport to the national cold room without undue impediments.

Recommendations:

All sections of the VAR must be dully filled-in, signed and the originals kept at the central store. Storekeepers/health worker must know the correct storage and freezing temperature for every vaccine. For all cold rooms and freezer rooms: Continuous temperature records are available, and these records demonstrate that vaccine has been stored correctly in both permanent and temporary cold stores. For vaccine refrigerators and freezers: temperature is being recorded at least twice every 24 hours, 7 days per week. National level: **88%**; Sub-national level: **81%**; Service level: **65%.**

The data at hands indicate EPI staff is very familiar with the correct storage temperatures of the vaccine on the national immunization schedule. However, while the central and intermediate levels are diligent with the recording of temperatures on a daily basis, the same can not be said for the service delivery level. In facilities, it is common place to record cold chain equipment temperatures only during working days while temperatures charts are not filled-in during weekends and public holidays. One other cause of concern is the fact that in the set-up where there are several refrigerators and freezers, temperatures records charts are not displayed on the relevant piece of equipment. At the lower levels, there are hardly any contingency plans, and places where the concept is incorporated in the programme, there is no displayed writing to support it for speedy implementation.

Cold chain staff at all levels need to record temperatures of equipment twice daily, 7 days a weeks, including weekends and public holidays

At all levels, temperatures recording sheets are to be displayed on refrigerators and freezers

Analysis & Commentaries

The current storage capacity at central level is apparently adequate, albeit the cold room can not be relied upon fully owing to its old age (14 years in service!). Vaccines refrigerators and freezers are in short supply and the majority of them are rather old, having passed their reliable life span. At sub-national level and store at service delivery level vaccine manager are not familiar with the procedures of adjusting supply.

Recommendations

Permanent storage capacity, although seemingly sufficient at central and sub-national levels need to be reviewed in the light of individual equipment, especially those that have surpassed their reliable lifespan.

Vaccine managers order vaccines based on previous consumption for a given period and therefore have little or no consideration for adjustment of stock. They need to be trained in this regard.

Vaccine managers ought to be trained and made aware of alternative storage possibilities and how they can acquire and use them when the need arises.

Accommodation within the store building is satisfactory for both National and Sub-national stores. The standard of cold rooms, freezer rooms, refrigerators and freezers is satisfactory in both permanent and temporary cold stores. There should be sufficient icepack freezing capacity to meet the maximum daily demand for icepacks. Cold boxes and vaccine carriers should be sufficient to meet peak demand. There should be a standby power supply for the vaccine store, with automatic start-up. Satisfactory transport arrangements are in place for transporting vaccine, including arrangements for the maintenance of correct temperatures during transport.

Analysis & commentaries

Stock management is still manual at all levels, including the central. The existing recording tools, i.e. stock register, vaccine order and delivery forms, etc. are standard at all levels but there are not comprehensive as they do not include diluents, syringes and safety boxes. Diluents, safety boxes and syringes are not recorded at any one level. For all levels vaccine managers rarely carry out stock inventories and at service level stock management and requisite cold chain practices are less than satisfactory.

Recommendations

There is an urgent need to computerize stock management at central and zoba levels and preferably up to sub-zoba levels, which is already implemented in 2010.

In the meantime, the programme should design, print and distribute to all levels manual vaccine management tools which must incorporate vaccines, diluents, syringes and safety boxes.
Strengthen supportive supervision at the lower levels so as to motivate staff.

Analysis & commentaries

The interpretation of the VVM and the practice of the multi-dose vial policy are well understood at central and sub-national levels. Staff at these levels is able to use the VVM for vaccine management purposes. At service delivery level there are no posters displaying the interpretation of the VVM and immunization staff lack confidence in their interpretation of the stages of the VVM. Individual EPI staff at all levels has basic knowledge of vaccine wastage. However there is no formal vaccine wastage monitoring system in place to collect data thereof. Subsequently the concept of wastage is not taken into account when for operational changes in vaccine management.

Recommendations

Ministry to Endeavour to supply and display posters with VVM's interpretation at all immunization venues in the system and undertake training courses for staff in the reading and interpretation of VVM and vaccine wastage for management purposes.

Ministry to put in place a system of monitoring and collection of data on vaccine wastage for the purpose of enhanced vaccine management.

Train staff at service delivery level to interpret confidently the VVM and use it also for vaccine management purposes

Effective vaccine delivery Requirement Distribution reports indicate compliance with the planned

8. COSTING AND FINANCING OF MULTI YEAR PLAN, 2012-2016

8.1 Costing and Financing Methodology for the Multiyear Plan

To ensure accuracy for the planning period, 2012-2016, further data gathering was undertaken to get the most up to date data to complete the cMYP Costing and Financing tool. The data inputs used were gathered at national level, mostly from documents of the Ministry of Health and from other line Ministries and from interviews with key personnel in the Ministries and partners such as WHO and UNICEF.

Programme inputs such as vaccines, injection materials, cold chain equipment, etc, were reviewed. Procurement of vaccines and injection supplies is done through UNICEF and so UNICEF standard price projections were adapted. Personnel costs were based on available data from current Government salary scales. Operational costs for routine and supplementary activities were based on past expenditures with some adjustments.

On completion of the programme planning component of the strategic multiyear plan for 2012-2016, the costing of future activities was completed. The standard user guide and tool for costing of multi year plans were used.

Baseline data from the Financial Sustainability Plan was used for coverage targets, personnel inputs, capital expenditure on cold chain, transport and other capital expenditure.

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It was beyond the scope of this project to do a comprehensive audit of the 2004 FSP. However to ensure consistency, between the cMYP and the FSP, a brief review of the FSP, for comparative purposes was undertaken which took into account the additional costs of the Penatvalent vaccine, campaigns, and differences in the line items included in Disease Surveillance and Programme management.

One or two paragraphs or a table on financial analysis in the past five years is to be added here.

9.1 Target Population:

The estimated target population for the immunization programme for the next 5 years, based on population estimate is outlined in Table 3. The Eritrea Statistics Office has conducted Eritrean Population Health Survey (EPHS) in the 1st quarter of 2010. Based on the out come of the survey the Ministry of Health, Health Information Management System (HMIS) has revised the health indicators and targets and developed a new manual. According the information's provided and guide lines developed by the HMIS of the Ministry of health, the EPI unit revised its target population for immunization. On this base, birth cohort for less than one year population changed from 4% to 3% and surviving infants from 3% to 2.7% starting from 2011. Hence that calculation and targets in the table below is set based on the above information.

Table 3: EPI Target population, 2012-2016

Target Population	Year				
	2012	2013	2014	2015	2016
Total population	3,712,910	3,813,158	3,916,114	4,021,849	4,130,439
Biths 0-11 months (3%)	111,387	114,395	117,483	120,655	123,913
Surviving infants (2.7%)	106,598	109,819	112,784	115,829	118,957
Under 5yrs (0-59 months) (15%)	556,936	571,974	587,417	603,277	619,566
Population 6-59 months (13%)	482,678	495,711	509,095	522,840	41,304
Pregnant women (4%)	111,387	114,395	117,483	120,655	123,913
Women of childbearing age 15-44yrs (20%)	742,582	762,632	783,223	804,370	826,088

A summary of the situation analysis over the period 2008-2010 is summarized in tables 4-6 by system components and accelerated disease control initiatives.

10.1 Table 4: Situational Analysis by Disease Control Initiatives, Eritrea, 2008-2010

System components	Indicators	National*		
		2008	2009	2010
Polio	OPV3 coverage Reported: : Crude /Valid Survey coverage:	68% NA	62% 98%/83%	58% NA
	Non polio AFP rate per 100,000 children under 15 yrs. of age	5.6	6.2	6.6
	Extent: NID/**SNID** No. of rounds Coverage range	2 Rounds 78%	3 Rounds 93%	Note done
MNT	TT2+ coverage	11%	10.1%	13%
	Number of districts reporting > 1case per 1,000 live births	0	0	0
	Was there an SIA? (Y/N)	No	No	No
Measles	Measles coverage Reported: : Crude / Valid Survey coverage:	66% NA	53% 99/ 75%	54% NA
	No. of outbreaks reported	0	0	0
	Extent: NID/SNID Age group <5 Coverage	Note done	83%	Not done
	MCV2 introduced	No	No	No

Table 5: Situational analysis of routine EPI by system components based on previous years' data (2008-2010)

* It is useful to include the data source for each data set.

System components	Indicators	National*		
		2008	2009	2010
Routine Coverage	National Penta coverage Reported: : Survey Crude /valid coverage:	68% NA	62% 98% /83%	58% NA
	% of districts with > 80% coverage	17%	17%	17%
	National penta 1- Penta 3 drop out rate	16.8%	11.2%	6.6%
	Percentage of districts with drop out rate DTP1-DTP3>10%	17%	17%	17%
Routine Surveillance	% of surveillance reports received at national level from districts compared to number of reports expected	100%	100%	100%
	Quality of surveillance data sufficient? (Y/N)	yes	Yes	yes
	Surveillance of Hib and Rota available (Y/N)	No	No	Yes
Cold chain/Logistics	Percentage of districts with adequate number of functional cold chain equipment	80%	85%	85%
	Contingency plan for cold chain available	No	No	Partially
AEFI	Percentage of districts supplied with adequate (equal or more) number of AD syringes for all routine immunizations	100%	100%	100%
	Percentage of districts supplied with safety boxes	84%	100%	100%
	Percentage of districts with proper sharps waste management systems	90%	95%	95%
Vaccine supply	Was there a stock-out at national level during last year? (Y/N)	No	No	No
	Percentage of zobas computerized stock management system is introduced	0%	0%	0%

* It is useful to include the data source for each data set.

Communication	Availability of a plan? (Y/N)					No	No	No
	Percentage of districts which have developed EPI communication plans					No	No	No
	Percentage of caretakers of children < 1yr understanding the importance of routine immunization.					45%	NA	NA
Financial sustainability	What percentage of total routine vaccine spending was financed using Government funds?(including loans and excluding external public financing)					20% on Pentavalent	20% on Pentavalent	20% on Pentavalent
Management planning	Are a series of district indicators collected regularly at national level?(Y/N)					Yes	Yes	Yes
	Percentage of all districts with micro plans.					100%	100%	100%
National ICC	Number of meetings held					3/3	3/3	2/3
Human Resources availability	Percentage of sanctioned posts of vaccinators filled					NA	NA	NA
	Percentage of health facilities with at least 1 vaccinator					100%	100%	100%
	Percentage of health facilities with at least 2 vaccinators					NA	NA	65%
	Number of vaccinators / 10.000 population					2.3	2.3	2.3
Transport / Mobility	Percentage of districts with a sufficient number of supervisory/EPI field activity vehicles/motorbikes/bicycles in working condition					35%	35%	35%
Data collection/ supervision and monitoring	Coverage survey done?					No	Yes	Yes EPHS
	Regular (quarterly) joint supervision was done					Yes	Yes	Partially
Waste Management	Availability of a waste management plan					Yes	Yes	Yes
	Vaccine wastage monitoring at national level for all vaccines? (Y/N)					Yes	Yes	Yes
Linking to other Health Interventions	Were immunization services systematically linked with delivery of other interventions (Malaria, Nutrition, Child health etc)?					Yes	Yes	Yes
Vit A Suppl.	Coverage of Vit A supplementation					85%	80%	79%
Programme Efficiency	Timeliness of disbursement of funds to district and service delivery level					90%	90%	90%
School Immunization	Age	Antigens provided	Coverage 2008	Coverage 2009	Coverage 2010			

Activities	15 – 18yr.	TT	NA	NA	NA

Table 6: SWOT analysis (Strengths, weaknesses, Opportunities and threats) of EPI system components, Eritrea, 2010

10.2 Team will update the SWOT analysis and insert here after the EPI program Review in Sep. 2011

10.3 Table 7: NATIONAL PRIORITIES, OBJECTIVES AND MILESTONES, ERITREA 2007-2011

National priorities and or key issues	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
Low administrative reported penta vaccine converge 58%	1- By 2016 achieve 90% valid Penta coverage at National, with at least 80% coverage in every district	2012: 80% 2013: 83% 2014: 86% 2015: 88% 2016: 90%	By 2016 all countries will have routine immunization coverage of 90% nationally with at least 80% coverage in every district.	1
Polio Eradication	2- Maintained polio free status & achieve >90% valid coverage of OPV3	2012: 80% 2013: 83% 2014: 86% 2015: 88% 2016: 90%	.Polio free status maintained	1
Measles elimination	3- Achieve >90% valid Measles coverage at national level with at least 80% valid coverage in every district.	2012: 78% 2013: 80% 2014: 83% 2015: 85% 2016: 90%	Greater than 90% MCV1 national level coverage with at least 80% coverage in every district. Greater than 95% measles SIAs coverage in all districts	1
MNT eliminations	4- Achieve 95% children protected from MNT at birth	2012: 90 % 2013: 92 % 2014: 93 % 2015: 94 % 2016: 95 %		2
Introduction of New Vaccine	5- Introduce Rota vaccine and reach 90% coverage	2012: Introduction 2013: 83% 2014: 86% 2015: 88% 2016: 90%		1
	6- Introduce Pnumoccocal vaccine	2016: Introduction		2

National priorities and or key issues	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
Underused vaccine	7- Introduce second dose of measles and reach at least 80% coverage	2012: Introduction 2013: 70% 2014: 75% 2015: 80% 2016: 80%		2
High drop out rate in 17% of districts (higher than 10%)	8- Reduce Pent 1- Pent 3 drop out rate to less than 10% in high risk areas (17%) of districts	2012: <10% 2013: <10% 2014: <10% 2015: <10% 2016: <10%		3
Bi Annual Vitamin A Supplementation campaign	9- Achieve 95% Vit. "A" supplementation integrated with other services including routine EPI coverage	2012:82% 2013: 82% 2014: 85% 2015: 90% 2016: 95%		2
Safe waste management practice	10 - 60% of the health facilities with sufficient practice of waste management	2012: 40% 2013: 45% 2014: 50% 2015: 55% 2016: 60%		2
Conduct regular monitoring & supervision	11- 65% of districts with a sufficient number of supervisory/EPI field activity vehicles/motorbikes/bicycles in working condition	2012: 45% 2013: 50% 2014: 55% 2015: 60% 2016: 65%	.	2
Limited number of EPI trained health workers in each HF	12- 90% of the health facilities will have at least two EPI trained health workers on safe vaccine administration and Cold chain management	2012:70% 2013:75% 2014:80% 2015:85% 2016:90%		2

National priorities and or key issues	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
Data collection, and reporting	13- Collect analysis and utilise data and provide timely report to the national, regional and sub regional level.	2012- 2016		1
Supervision, monitoring and review of the program	14- Conduct quarterly supervision and monitoring at national and zoba level	2012- 2016		2
	15- Review and document EPI programme each three years .	2015		
Ensure Sustainable Financing and good coordination	16- increase and sustain government and partners contribution to EPI	2012-2016		1
Low (45%) awareness of care takers on immunization	17 - 85% of caretakers of children < 1yr understand the importance of routine immunization & when to return back.	2012: 60% 2013: 65% 2014: 70% 2015: 75% 2016: 85%		3
Unavailability of communication plan	18 - Develop & operationalize national child survival communication Strategy that includes issues related to Rota virus, Pneumoncoccal vaccines and MCV2.	2012: Developed 2012-2016: operational zed		1

National priorities and or key issues	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
Strengthen /maintain completeness and timeliness of routine Surveillance reports	19- 100% of surveillance reports expected, timely arrived from the districts and meets completeness criteria	2012: 100% 2013: 100% 2014:100% 2015:100% 2016 100%		
	20 - Strengthen the National Certification Committee and establish the National Task Force for Laboratory Containment (NTFL) of WPV	2012: 98% 2013: 98% 2014:100% 2015:100% 2016 100%		
Contingency plan for cold chain	21- 100% of the zobas develop contingency plan for cold chain management	2012: 80% 2013: 80% 2014: 90% 2015: 100% 2016: 100%	By 2016 all countries will have routine immunization coverage of 90% nationally with at least 80% coverage in every district.	1
Computerized stock management of vaccines & other EPI logistics	22- 20- 100% of the zoba use computerized stock management of & EPI logistics	2012: 80% 2013: 80% 2014: 100% 2015: 100 2016: 100%	.Polio free status maintained	1
Enhanced cold chain capacity	23- 100% of Zobas (Districts) and 95% of Health facilities with adequate number of functional cold chain equipment	2012: 100 Zoba 90% HF 2013: 100 Zoba 92% HF 2014: 100 Zoba 94% HF 2015: 100 zoba 95% HF 2016: 100 Zoba 95% HF		1
Availability of cold chain equipments and spare parts	24- Availability of cold chain equipments and spare parts for replacement and maintenance at national zobal level	2012-2016	Greater than 90% MCV1 national level coverage with at least 80% coverage in every district. Greater than 95% measles SIAs coverage in all districts	1

11.1 STRATEGIES, KEY ACTIVITIES, & TIME LINES of EPI cMYP 2012 – 2016 ERITREA

National Objective	Strategy	Key Activities	2012	2013	2014	2015	2016
1- By 2016 achieve 90% valid Penta coverage at National, with at least 80% coverage in every district	Reinforcing of the RED/REC /SOS approach	Procure sufficient vaccine and injection safety material and distribute to the health facilities					
		Implementation of Sustainable Out reach Service (SOS) in hard to reach and low performing sub zobas					
	Integration of immunization with CHNW	Conduct integrated immunization activities with child health and Nutrition week twice per year					
	Expansion & strengthening routine out reach services	Conduct regular routine static and outreach services focusing on hard to reach areas, marginalized groups, and low performing DPT3 coverage areas					
2- Maintained polio free status & achieve >90% valid coverage of OPV3	Polio SNID	Conduct SNID in selected high risk reas /sub zobas					
	Reinforcing of the RED/REC / SOS approach	Implementation of Sustainable Out reach Service (SOS) in hard to reach and low performing sub zobas					
	Integration of immunization with CHNW	Conduct integrated immunization activities with child health and Nutrition week twice per year					
	Expansion & strengthening routine out	Conduct regular routine static and outreach services focusing on hard to					

	reach services	reach areas and marginalized groups					
3- Achieve >90% valid Measles coverage at national level with at least 80% valid coverage in every district.	Follow up campaign for <5 years old	Conduct follow up campaign every three years					
	Reinforcing of RED/REC /SOS approach	Implementation of Sustainable Out reach Service (SOS) in hard to reach and low performing sub zobas					
	Integration of immunization with CHNW	Conduct integrated immunization activities with child health and Nutrition week twice per year					
	Expansion & strengthening routine out reach services	Conduct regular routine static and outreach services focusing on hard to reach areas and marginalized groups					
4- Achieve 95% children protected from MNT at birth	TT vaccination for school girls	Conduct bi annual TT vaccination sessions to junior and high school girls					
	Reinforcing of RED	Implementation of Sustainable Out reach Service (SOS) in hard to reach and low performing sub zobas					
	Integration of immunization with CHNW	Conduct integrated immunization activities with child health and Nutrition week twice per year					
5- Introduce Rota vaccine and reach 90% coverage	Development of introduction plan and coordination with partners	Prepare & submit proposal to GAVI for Rota	2011				
		Train service providers and organize community mobilization					
		Procure vaccine and distribute to health facilities					
		Revise the reporting tools including child card and IEC material	2011				
		Supervise and monitor programme implementation					

6- Introduce Pnumoccocal vaccine	Development of introduction plan and coordination with partners	Prepare & submit proposal to GAVI					
		Train service providers and organize community mobilization					
		Supervise and monitor programme implementation					
		Revise the reporting tools including child card and IEC material					
7- Introduce second dose of measles and reach at least 80% coverage	Development of introduction plan for second dose MCV2 and coordination with partners	Prepare & submit proposal to GAVI	2011				
		Train service providers and organize community mobilization	2011				
		Procure and distribute Vaccine and injection safety material	2011				
		Supervise and monitor programme implementation					
8- Reduce Pent 1- Pent 3 drop out rate to less than 10% in high risk areas (17%) of districts	Establishing a defaulter tracing system.	Train community health workers in tracing the vaccine defaulters including usage of wall monitoring charts					
	Minimizing missed opportunities	Conduct defaulter tracing activities with child health and Nutrition week as well as with routine outreach services					
9- Achieve 95% Vit. "A" supplementation integrated with other services including routine EPI coverage	Conduct Bi annual vit. Supplementation campaign	Conduct integrated child health and nutrition weeks twice per year					
	Community Mobilization	Conduct integrated social mobilization activities with vaccination week and or child health and nutrition week					

10 - 60% of the health facilities with sufficient practice of waste management	Proper waste disposal	Develop waste management guide line					
		Build/install incinerators at sub zoba level and dig pit holes at health stations					
		Train health workers on proper waste management and disposal					
11- 65% of districts with a sufficient number of supervisory/EPI field activity vehicles/motorbikes/bicycles in working condition	Advocacy to promote commitment of Gov. & partners to provide the resources	Procure and distribute transportation means to zobas and sub zobas					
		Maintain the transportation means of EPI programme					
Human Resources 12- 90% of the health facilities will have at least two EPI trained health workers on safe vaccine administration and Cold chain management	Capacity Building / Cascade training	Provide basic / refresher training to EPI service providers					
		Conduct pre-service, MLM and operational level training					
	Review staffing at national, Zoba and sub zoba levels	Assign newly graduate health workers/ EPI mangers to priority areas					
13- Collect analysis and utilise data and provide timely report to the national, regional and sub regional level. .	Conduct DQS, Surveys, reviews, assessments/ operational research	Implement DQS at zoba level on quarterly basis					
		Conduct EPI coverage survey at national level					
		Conduct EPI review meeting annually at zoba level					
		Conduct Data harmonization meeting at national and zoba level					

	Introduce DVDMT at the zoba level	Train zoba staff on use of DVDMT					
		Monitor implementation of DVDMT at zoba level					
14- Conduct quarterly supervision and monitoring at national and zoba level	Conduct regular supervision and monitoring	Develop standard supervision check list that includes AEFI					
		Conduct supervision on EPI service including AEFI at zoba and national levely quarterly base					
		Provide timely feed back for sub zoba and health facilities					
15: Review and document EPI programme each three years	Review meeting	Conduct national EPI program review in 2015					
Finance: 16- increase and sustain government and partners contribution to EPI	Coordination, Documentation and information sharing	Dialogue with MoH and MoF					
		Consultation with partners					
		Coordinate immunization financing through the ICC to ensure adequate and appropriate donor support					
		Increase government contribution to vaccine purchase costs by 10% annually					
		Conduct Regular technical coordination meetings, ICC meetings, feedback to partners					
		Ensure long term financial requirements from national government					

11. 3 Table 8B: Advocacy and Communications

National Objective	Strategy	Key Activities					
17 - 85% of caretakers of children < 1yr understand the importance of routine immunization & when to return back.	Promote owner ship of immunization activity at community level through social mobilization	Conduct KAP survey (Health workers and caretakers)					
		Develop/ update evidence-based IEC and other social mobilization materials					
		Utilize various medias to reach the households					
18 - Develop & operationally national child survival communication Strategy that includes issues related to Rota virus, Pneumoncoccal vaccines)	Institutionalize communication as integral part of programme implementation	Meetings and dialogue with Health Promotion centre, health programmes in MoH, other line ministries, community level, local CBOs, health workers, media, local government in zones and partners					
		Draft the communication plan and make it available at all levels					
		Conduct consensus building with zones and develop reporting tools and guidelines					
		Orientation of health workers, community health workers, staff of relevant partners					
		Update/Develop and disseminate the tools and materials					
		Review of implementation					
		Conduct regular sensitization of health workers/clinicians					

11.4 Table 8C: Surveillance

National Objective	Strategy	Key Activities					
19- 100% of surveillance reports expected, timely arrived from the districts and meets completeness criteria	Strengthen active AFP/ Measles and MNT surveillance	Disseminate guidelines and training materials at zonal level					
		Conduct training need assessment					
		Conduct regular sensitization of health workers/clinicians					
		Provide adequate supply of specimen collection tools and reversal cold chain support					
		Provide support for shipment of specimens from reporting sites to WHO-accredited labs					
		Conduct quarterly surveillance review meetings					
		Regularly supervise and monitor activities					
	Conduct Hib and Rota disease burden assessment	Strengthen Hib- PBM and Rota virus sentinel sites in National Paediatrics Referral Hospital hosp					
		Collect and analysis data for programme planning					
		Conduct Rota disease burden assessment					
20 - Strengthen the National Certification Committee and establish the National Task Force for Laboratory Containment (NTFL) of WPV	Strengthen national measles lab	Provide essential material and operational fund and technical supports to national measles lab					
		Train the lab technicians on recent technology and knowledge					
	Establishment of community based AFP/Measles/ NNT surveillance	Train community health workers					
		Follow up and feedback					

11.5 Table 4D: Vaccine supply, quality and logistics

National Objective	Strategy	Key Activities					
21- 100% of the zobas develop contingency plan for cold chain management	Developing contingency plan	Update contingency plan on central and zonal EPI departments annually					
22- 100% of the zoba use computerized stock management of & EPI logistics	Institutionalized Computerized stock management of EPI logistics	Provide computers and necessary tools for zoba					
		Vaccine arrival at national and delivery to Zoba cold chain is as scheduled					
		Training data clerks to use the equipment and analysis data at zoba level					
23- 100% of Zobas (Districts) and 95% of Health facilities with adequate number of functional cold chain equipment	Enhance cold chain capacity by Timely replacement of ageing equipment	Update cold chain inventory					
		Procure cold chain equipments to replace 10-15 % of equipment annually					
		Procure spare parts for Cold Chain equipment					
		Train CC technicians in updated guidelines and procedures					
24- Secure enough amount of cold chain equipments and spare parts for replacement and maintenance	Build Capacity of CC technicians	Train CC technician					
	Equipments and spare parts become available	Procure cold chain equipments and spare parts					