EXPANDED PROGRAM ON IMMUNIZATION

MULTI YEAR PLAN

2017-2021

Central Expanded Programme on Immunization
Department of Public Health, Ministry of Health and Sports,
The Republic of the Union of Myanmar

MAY 2016

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Acronyms

AD ..... Auto-disable
AEFI ..... Adverse Events Following Immunization
AFP ..... Acute Flaccid Paralysis
BCG ..... Bacillus Calmette-Guerin
BHS ..... Basic Health Staff
CEPI ..... Central Expanded Programme on Immunization
CEU ..... Central Epidemiology Unit
CMSD ..... Central Medical Store Depot
cMYP ..... Comprehensive Multi-Year Plan
CSO ..... Civil Society Organization
DOPH ..... Department of Public Health
DTP ..... Diphtheria, Tetanus and Pertussis Vaccine
EPI ..... Expanded Programme on Immunization
EVM ..... Effective Vaccine Management
GDP ..... Gross Domestic Product
GGE ..... Government General Expenditure
GHE ..... Government Health Expenditure
GVAP ..... Global Vaccine Action Plan
HA ..... Health Assistant
Hep B ..... Hepatitis B Vaccine
Hib ..... Haemophilus Influenzae b
HMIS ..... Health Management Information System
HSS ..... Health System Strengthening
ICC ..... Interagency Coordination Committee
IEC ..... Information, Education and Communication
IIP ..... Immunization in Practice
ILR ..... Ice- Lined Refrigerator
IPV ..... Inactivated Polio Vaccine
JE ..... Japanese Encephalitis
JICA ..... Japan International Cooperation Agency

JRF ..... Joint Reporting Form
LHV ..... Lady Health Visitor
MCH ..... Maternal and Child Health
MCV1 ..... Measles Containing Vaccine –First Dose
MDG ..... Millennium Development Goals
MICS ..... Multi Indicator Cluster Survey
MNT ..... Maternal and Neonatal Tetanus
MOH ..... Ministry of Health
MR ..... Measles Rubella
MW ..... Midwife
NGO ..... Non-governmental Organization
NHP ..... National Health Plan
OOP ..... Out-of-Pocket
OPV ..... Oral Polio Vaccine
PCV ..... Pneumococcal Conjugate Vaccine
PHS ..... Public Health Supervisor
RED ..... Reaching Every District
RHC ..... Rural Health Centre
R/S ..... Regions/State
SBA ..... Skilled Birth Attendant
SIA ..... Supplementary Immunization Activity
Sub-RHC ..... Sub-Rural Health Centre
Td ..... Tetanus and Diphtheria Vaccine
THE ..... Total Health Expenditure
TMO ..... Township Medical Officer
TT ..... Tetanus Toxoid
UHC ..... Urban Health Centre
UNICEF ..... United Nations Children's Fund
USD ..... United States Dollar
VDPV ..... Vaccine Derived Polio Virus
VPD ..... Vaccine Preventable Disease
WHO ..... World Health Organization

Executive Summary

Situation Analysis: Myanmar has had several achievements in the last few years. It has attained significant progress in reaching the disease control and elimination targets of the Global Vaccine Action Plan. Specifically, it has conducted a successful measles-rubella campaign in 2015. MNT elimination was achieved in 2010. It has also introduced measles-rubella vaccine to replace the measles first dose among children 9 months old and has a second dose of measles vaccine at 18 months and IPV vaccine at 4 months of age. . The CEPI also is planning to introduce pneumococcal vaccine in July 2016.

The last case of wild poliovirus was detected in 2007 but Myanmar has faced challenges with outbreak of vaccine derived polio virus in its hard-to-reach and conflict areas. It had two cases of cVDPV type 2 in Manugdaw, Rakhine 2015 and is conducting mop-ups and SIAs as a response. Immunization coverage has declined in the country during the last few years. The decline is due to the following: 1) Inequities in immunization coverage for children in areas affected by conflicts, geographically hard to reach areas, among peri-urban populations, migrant population, and self-administered regions; 2) lack of adequate resources and support for transport for midwives for outreach and supervisors, leading to low health workforce motivation; 3) lack of cold chain at the RHC level, even in hard-to-reach areas; and 4) need for additional cold chain storage and vaccine management skills.

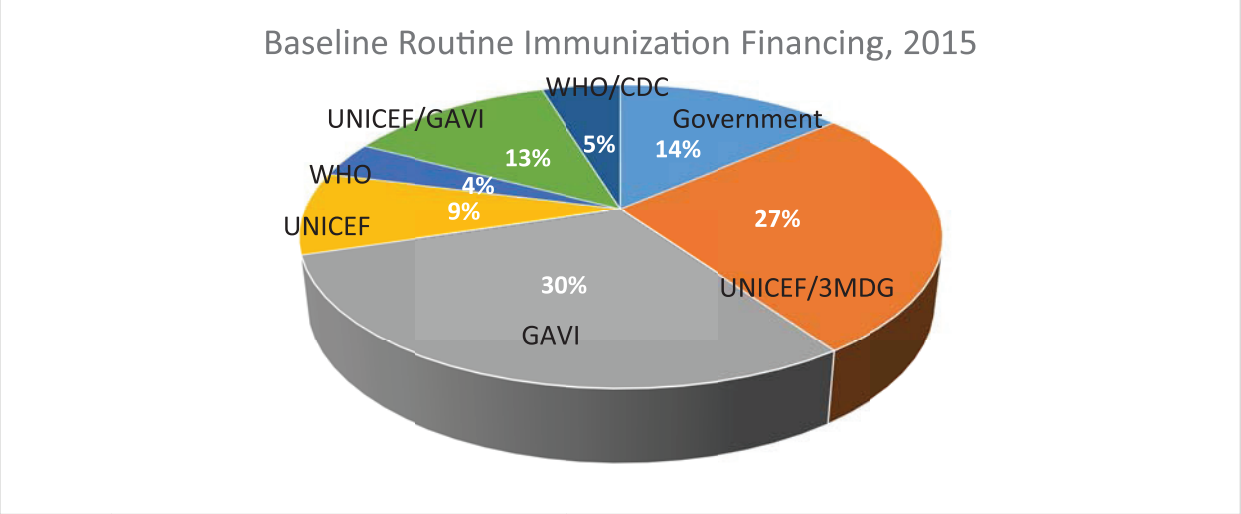
The immunization program is also facing some health system constraints. The government spending on health is low at approximately 3% and the program has a high reliance on external funding for vaccines and injection supplies. In addition, the key service provider for EPI, the midwife, is overburdened with multiple responsibilities and the need to conduct outreach with inadequate resources, often in large geographical areas.

Baseline Costing Profile: The following table shows the baseline costing profile. Total immunization expenditures without shared costs (personnel, buildings, transport, etc.) were approximately $58 million and $67 million with shared costs. Routine immunization comprises $30 million and supplementary immunization activities $28 million.

Baseline Indicators	2015
Total Immunization Expenditures (without shared costs)	$57,951,072
Routine Immunization (without shared costs)	$30,382,386
Per Capita (RI only)	$0.59
SIAs	$27,568,686
Cost per Penta – 3 child (RI only)	$43
% Vaccines & Supplies	19%
% Government Funding	14%
Total Shared Costs	9,387,619
% Shared Health Systems Cost	14%
Total Immunization System Costs (with shared costs)	$67,338,690

The cost for routine immunization is $0.59 per capita and $43 per child getting a third dose of pentavalent vaccine.

Baseline Financing Profile: The following figure shows the baseline routine immunization profile (without shared costs) in 2015. The government financed 14% of costs (personnel, maintenance, buildings), GAVI 30% (new and underused vaccines), and UNICEF/3MDG 27% (cold chain). The remaining sources were UNICEF 9% (traditional vaccines and injection supplies and cold chain), UNICEF/GAVI (IEC/Social mobilization and cold chain maintenance), WHO/CDC 5% (surveillance), and WHO/GAVI 4% (monitoring, training, IEC, and program management).



National Immunization Program 2017-2021

The goal of the Myanmar immunization programme is to reduce vaccine preventable associated morbidity,mortality and disability. The objectives of the programmes are the following:

- To strengthen immunization programme management, human resources, financing and service delivery to provide equitable service to all target population including special strategy for peri urban, slum, migratory populations, geographically and socially hard to reach and conflict area
- To improve demand creation and ownership towards immunization through community participation and communication
- To strengthen immunization supply chain, vaccine management and build stronger cold chain systems at all levels
- To achieve the goals of eradication, elimination and control of VPDs
  a. To maintain zero polio cases (both WPV and VDPV)
  b. To maintain MNT elimination status
  c. To achieve elimination of measles and control of rubella and CRS by 2020
- To strengthen and maintain strong surveillance system for AEFI and other priority VPDs
- To introduce new and underused vaccines and new technology into routine immunization supported by evidence of disease burden

The National Programme Monitoring Framework is shown in the table below:

Indicator	2015	2021
Penta-3	78%	90%
BCG	86%	95%
OPV3	78%	90%
IPV	n/a	90%
PCV-10	n/a	90%
Rota	n/a	90%
Measles-Rubella	86%	95%
Tetanus Toxoid	80%	88%

Cost and Financing Projections: The cost and financing projections are shown in the table below. The total resource requirements during 2017 to 2021 are $324 million. The cost per capita is $1.08. Secure financing is $214.8 and secure and probable financing is $280.7 million. The gap in financing with secure and probable financing is estimated to be $43.2 million or 13.3% of the total.

		2017	2018	2019	2020	2021	Total
Total Resources Required	**(US$ millions)**	**79.8**	**65.6**	**58.2**	**60.8**	**59.7**	**324.0**
Cost per capita (routine only)	(in US$)	1.12	1.12	1.08	1.11	0.97	1.08
Total Secure Financing	**(US$ millions)**	**44.5**	**44.2**	**43.5**	**44.1**	**38.6**	**214.8**
Funding Gap (with secure)	(US$ millions)	35.3	21.4	14.6	16.7	21.1	109.1
Total secure + probable Financing	**(US$ millions)**	**79.3**	**57.7**	**56.2**	**53.0**	**44.6**	**280.7**
Gap (with secure + probable)	**(US$ millions)**	**10.5**	**7.9**	**2.0**	**7.8**	**15.1**	**43.2**
		13.2%	12.0%	3.4%	12.8%	25.3%	13.3%

1. Situation Analysis

1.1 Background Information

1.1.1. Landscape and Climate

The Republic of the Union of Myanmar is the largest country in mainland South-East Asia and is located on the Bay of Bengal and Andaman Sea. It is bounded on the north and north-east by the People's Republic of China, on the east and south-east by the Lao People's Democratic Republic and the Kingdom of Thailand, on the west and south by the Bay of Bengal and Andaman Sea, on the west by the People's Republic of Bangladesh and the Republic of India (see Figure 1). It had an estimated total population of 51.4 million in 2014. (WHO EPI Fact Sheet 2014)

Figure 1. Political Map of Myanmar

Most of Myanmar lies within the Tropic Zone. The hot season extends from March through October, and the cool season, the period of the northeast monsoon, from November through February. Temperatures from the cool to hot seasons range from 17° to 40° C (62° to 104° F) in Lower Myanmar and from less than 17°C (62°F) to more than 40° C (104° F) in Upper Myanmar. Temperatures are generally lower in mountainous regions. The country receives practically all its

rainfall between mid-May and October, the period of the Southwest Monsoon. Annual precipitation in most of Upper Myanmar averages about 890 mm (about 35 in) and in Lower Myanmar about 5080 mm (about 200 in).

1.1.2 Administrative and political structure

Administratively, Myanmar is divided into seven regions (Ayeyawady, Bago, Magway, Mandalay, Sagaing, Taninthayi, and Yangon), seven states (Chin, Kachin, Kayah, Kayin, Mon, Shan, and Rakkhine) and Union Territory. Nay Pyi Taw, the capital, is under the direct administration of the president. The regions and states are divided into 70 districts and 330 townships, 84 subtownships, 398 towns, 3,063 wards, 13,618 village tracts and 64,134 villages. There are also five self-administered zones and one self-administered division for six minority ethnic groups. (WHO 2014) The smallest administrative unit is the village tract.

There are over 130 ethnic groups in Myanmar with eight major groups: Bamar (60%), Shan (8.5%), Kayin (16.2%), Rakhine (4.5%), Mon (2.4%), Chin (2.2%), Kachin (1.4%), and Kayah (0.4%). About 90% of the population is Buddhist, 5% Christian, and 4% Muslim.

1.1.3 Demography

Socio-demographic and administrative characteristics are shown in Table 1 as follows:

Table. 1. Demographic characteristics

1	Total population	51.4 million
2	Annual growth rate (%)	1.0%
3	Infant population	0.9 million
4	Under five year population	4.6 million
5	Proportion of rural population	67%
6	Proportion of Urban population	33%
7	0-15 year population	25%
8	15-59 year population	67%
9	60 and above year population	8%
10	Number of States and Regions	17*
11	Number of Districts	69
12	Number of Townships	330

A quarter of Myanmar's population is under fifteen, two-thirds are between the ages of 15-59, and the remaining 8% are sixty or over. Two-third of the population lives in rural areas. The infant population is close to a million. Myanmar had a census in 2014, following a period without a census since 1983, and estimated the population is approximately 52 million.

Some internal migration takes place in the country as people leave their homes to work in areas with gold and jade mines as well as rubber plantations.

1.1.4 Social and political context

Myanmar gained independence from British colonial rule in 1948. After fifteen years of democratic government, there was a military coup in 1962. In 1974, the Burma Socialist Programme Party introduced a constitution. The military staged another coup in 1988. In 2008, a new constitution was ratified and there were national elections in November 2010. The country now has elected chair persons and vice-chairpersons of parliament.

Since the new government came to power in 2011, the country has introduced several sweeping reforms to end its isolation. Formation of civil society organizations is now allowed and there is media freedom.

Recent constitutional reforms have opened up new health sector and program pathways in Myanmar. Administrative systems are becoming more decentralized, NGOs are becoming more active, policy reforms such as social protection are beginning to emerge, and there has been a substantial increase in international development assistance aid flows and government health investment. These developments present both opportunities and challenges to the EPI program. (GAVI Joint Appraisal 2015) The main opportunity presented is increased resourcing for health system development and operational delivery of public services, and expanded opportunity for peace agreements with populations in conflict. The main threat is lack of absorptive capacity by sub national institutions that have limited systems (planning, budgeting, M & E) to manage and direct larger operational budgets. The political reform context has also generated higher levels of population mobility and urban drift, presenting major contextual challenges in terms of the growth of urban poor settlements, as well as making it more difficult to calculate population denominators and identify populations at risk of not being immunized.

1.2 Health Sector Analysis

1.2.1 Macroeconomic Context

Myanmar has been under economic sanctions since the late 1990s and these have inhibited economic growth. The new civilian government that came into power in 2011 has introduced reforms to integrate Myanmar's economic with the global system. In the past year, Myanmar's economy has been growing well and was 8.5 percent in real terms in 2014/15. However, growth is projected to decline to 6.5 percent in 2015/16 due to floods and slowing investments. (ww.worldbank.org/en/country/Myanmar)

Economic reforms have supported consumer and investor confidence despite ongoing business environment and socio-political challenges. Rapidly rising demand for investment-related imports has widened the current account deficit. Inflation is estimated to have reached over 10 percent in the year to July. Medium-term economic growth prospects remain strong assuming continued progress on reforms. (ww.worldbank.org/en/country/Myanmar)

1.2.3 Health system

The health system has evolved over time, as can be seen in Table 2. The country has gone from a hospital centric approach during 1988-2011 to a system with a goal of universal coverage (see Table 2). However, government spending on health is still low. The government has spent a relatively low percentage of its general expenditure on health with only 1.8% of GDP spent on health in 2013 (Health Sector Review WHO 2014),

Table 2. Trends in Health System in Myanmar, 1974-Present

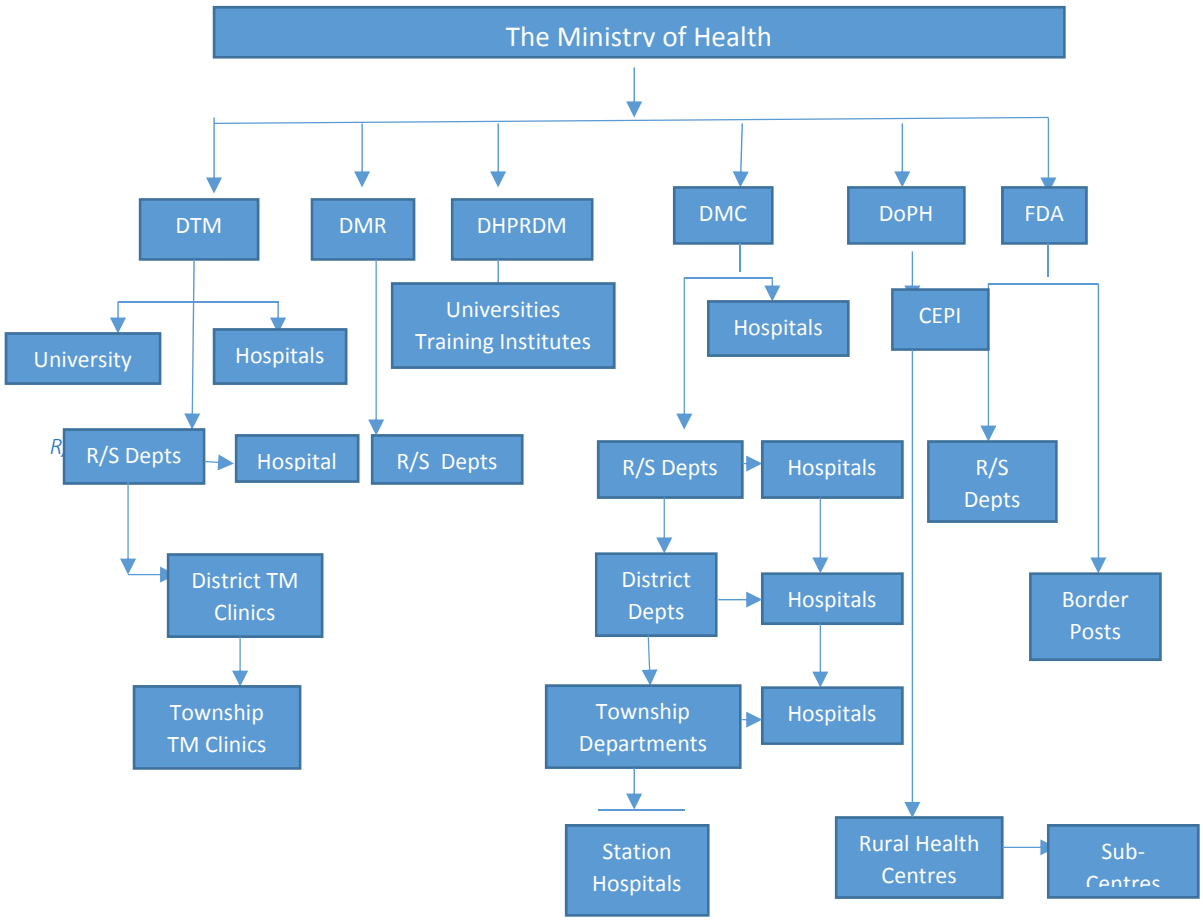
	1974-1988	1988-2011	2011-
Period	BSPP (Military backed)	SLORC (Military) and SPDC (Military)	Democratization and Reconciliation
Constitution	1974		2008
Health policy and strategies	Health for All and primary health care; Prevention oriented; Reducing urban-rural health gap	HFA ideology from Declaration of Alma Ata on PHC, rural and border health development, MCH, HSS	Universal coverage, social security system schemes amended, unclear policy on financial risk protection for the poor and informal sector, HSS
Health service provisions	Rural expansions	Hospital centric, weakening township health systems, but development in border areas	Rapidly increased role of private provision, increased role of INGOs and NGOs
Health financing	Free service at public facility through government revenue	Introduction of user charges in 1993, resulting in high proportion of OOP for health	Increased government expenditure on health, but still low. High OOP, significantly increased donor funding
GHE (% of GGE)	NA	7% (2001)	1.3% (2011)
OOP	NA	88% (2001)	79% (2011)
Life expectancy	52	61	65
Challenges	Low government spending for health. PHC remained resource-deprived and mismanaged.	Hospital centric investment, though underused, while township health system deteriorating	NCD in light of a few unfinished infectious disease agendas. Aid effectiveness/ donor harmonization, expansion of financial risk protections to the poor and informal sector.

Source: Myanmar Health Sector Review (WHO 2014); GHE = government health expenditure; OOP = out-of-pocket spending

Health System Organization

The Ministry of Health (MoH) is responsible for planning, financing, administrating, regulating and providing health care; it is headed by the Minister. The MoH has recently reorganized and now has six departments: Department of Traditional Medicine (DTM), Department of Medical Research (DMR), Department of Health Professional Resource Development and Management (DHPRDM), Department of Medical Care (DMC), Department of Public Health (DoPH), and Department of FDA (FDA). The CEPI falls under the DoPH.

Figure 2. Ministry of Health Organogramme



The DMC oversees the network of hospitals while the DoPH is in charge of RSPHD, TPHD, RHCs and sub-centres. Township health departments provide comprehensive health services at the local level. Regional and State public health departments provide supervisory and technical support.

Health Financing

Government health expenditure in Myanmar, 3% of general government expenditures (data. worldbank.org),. Expenditure on health has increased in recent years but is still low at about 3%. Inadequate government expenditure on health over the past decade has results in high out-of-pocket payments by household, which because the largest source of financing for health care (79%) (WHO 2014.)

1.3. Immunization System Structure and Function

The EPI in Myanmar was launched in 1978 in 104 townships, along with the commencement of the First Peoples Health Plan (PHP, 1978-1982) when BCG, DPT and TT vaccines were introduced. It now reaches all townships in the country. Measles and polio vaccines were introduced into the routine EPI program for infants in 1987. Hepatitis B vaccine was introduced in phases from 2003 and the country introduced pentavalent (DTP-HiB-HepB) and measles as second dose vaccines in 2012, rubella and IPV vaccine in 2015. Table 3 below shows the routine vaccine schedule in Myanmar. The country plans to introduce pneumococcal vaccines in 2016.

Table 3. The future routine immunization schedule

Target Groups	Antigen	Age
Child	BCG	Birth
	Pentavalent	2,4,6 months
	OPV*	2,4,6 months
	Pneumococcal	2,4,6, months
	IPV	4 months
	Hepatitis B	Birth
	Measles Rubella	9 months
	Measles	18 months
Pregnant Women	Tetanus Toxoid	1st contact pregnancy, +4 weeks

*The second dose of tOPV will be replaced by bOPV in 2016.

Table 4 shows the WHO-UNICEF Immunization coverage estimates from 2010 to 2014 in Myanmar. Coverage for BCG, DTP3/Penta3, and OPV3 declined during the period while coverage for the other vaccines has stayed the same.

Table 4. Immunization Coverage by Antigen in Myanmar, 2010-2014

	2010	2011	2012	2013	2014
BCG	93	93	87	86	86
DTP3/Penta3	90	84	84	75	75
OPV3	90	90	87	76	76
MCV1	88	88	84	86	86
MCV2	75	80	-	80	80
TT	86	87	85	81	85

Source: WHO/UNICEF estimates

Some reasons that coverage is not increasing include the following:

1) Existence of hard-to-reach populations in mountainous areas, border areas and peri urban communities in major cities.
2) Mobile and migrant populations in work sites and temporary settlements and socially hard to reach populations;
3) Limited financing for transport and logistics for outreach;
4) High target or denominator population despite low birth rate;
5) Health workforce motivation is limited at times due to inadequate means of transport for mobility, operational costs, incentives and large workload;
6) Underserved pockets in coverage in adjacent areas between townships; and
7) Security limitations.

1.3.1 Immunization Service Delivery

The Central EPI (CEPI) and Central Epidemiology Unit (CEU) of the Department of Public Health are responsible for formulation and development for planning, management of vaccine and cold chain, supplies and logistics, surveillance of vaccine preventable diseases and adverse events following immunization, and outbreak management of vaccine preventable and other emerging diseases, training, supervision, monitoring and evaluation.

The EPI is administered by central level staff assigned for EPI program and working through state/regional counterparts and Township Medical Officers and other public health staff at township, RHC and Sub-RHC levels. The Special Disease control units (SDCU's) provide supervisory, monitoring and technical support to the Central EPI unit at State/Regional level. Vaccination is delivered through a combination of approaches: fixed, outreach, mobile and crash, as described in Table 5.

Table 5. Immunization Service Delivery Strategies in Myanmar

Immunization Strategy	Nationally recommended practice
Fixed	Regular, routine immunization services provided at hospitals, health centres or sub-health centers.
Outreach	Monthly, routine immunization services provided by a midwife away from her health facility in areas which are easily accessible.
Mobile	Routine immunization services provided by a midwife away from her resident villages in areas that are not easily accessible. Services may or may not be given monthly, but a minimum of six times a year.
Crash	Special immunization services provided by a group of health workers to cover hard-to-reach areas during the open season at least three times per year. These services are normally mobilized as a campaign, require extra resources and target all children under three years of age and women of child bearing age.

Source: National EPI Programme Review, 2008

Routine immunizations are delivered at fixed sites at Maternal and Child Health Centers (MCH), Urban Health Centers and township hospitals in Urban and at RHCs and sub centers in the rural areas. Majority of Immunization services are provided through outreach activities in wards and villages. Immunizations are provided by midwives and public health supervisors and are supervised by Lady Health Visitors (LHVs).

The Expanded Programme on Immunization is monitored at all levels through field visits, desk reviews of the data reported in the reporting formats and in the HMIS at each level using standardized monitoring indicators such as coverage rates, drop-out rates and vaccine wastage. The former two are disaggregated to the RHC and sub centre level and the latter aggregated at the state/region and national levels. This is an ongoing activity and helps the managers take decisions about the reach and quality of services offered and also ensures that the issues of access and equity are being adequately addressed. WHO and UNICEF staff also support the Government by monitoring the programme during field visits using standardized tools.

Supervision of the programme is carried out by a cadre of supervisors. At the township level, the township medical officer (TMO), Township Has, and Township Community Health Nurse are the supervisors. At the RHC and sub-centre levels, the supervisors include the Lady Health Visitor (LHV) and the Health Assistant (HA). They use standardized supervisory checklists and formats to record their findings and provide feedback. The Central EPI visits and supervises at State/ Regional and township levels, The Township managers supervise the Rural and urban health centers.

Programme evaluation is carried out by the EPI focal person at the townships (TMO's) in monthly meetings, State/regional (S/R Director and SDCU) and National levels (Central EPI and CEU) through annual meetings using standardized monitoring indicators. These meetings form the basis for the determination of coverage by different antigens. Independent programme evaluations are few and far between, two Multiple Indicator Cluster Surveys (MICS) have been conducted in 1990, 2002, and 2010. Currently, a Demographic and Health survey is being conducted and results will be available in end of 2016.

1.3.2. Routine Immunization in hard to reach populations

Myanmar has pockets of low immunization coverage in border areas, conflict area, physically hard-to-reach areas, in urban slums and among migrant communities and conflict area. The National EPI Programme Review attributes the low coverage to the limited opportunities for vaccination among these communities (WHO 2008). In these communities, opportunities for immunization are lost due to the present one contact/month contact strategy and associated lack of active vaccine storage devices at fixed service delivery points (RHCs). Some recommendations for ways to improve coverage are the following: 1) extend the present 3 tier cold chain to a 4 tier chain in certain geographic or hard to reach areas, direct supply of vaccines from Sub-depots to RHCs rather than storage at Townships in certain zones/regions. Such a re-design will also require an assessment of transport arrangements

Secondly, the government does not provide transport allowances to midwives to conduct outreach or mobile immunization to hard-to-reach communities. Increasing the payment of operational costs of midwives for outreach and mobile service delivery will allow them to increase the frequency of contact with many of these hard to reach populations.

1.3.2. Accelerated Disease Control Initiatives

In addition to routine immunization activities outlined above, supplementary immunization activities such as National Immunization Days and Mop-Up for polio eradication, mass campaigns for measles control and maternal and neonatal tetanus elimination have been undertaken since 1996.

1.3.2.1.Polio Eradication

Myanmar was free from polio in the period of 2003-2005, . Last case of wild poliovirus was in 2007. But has had outbreaks of vaccine-derived poliomyelitis (VDPV) since then. The outbreaks occurred in 2006, 2007, 2010, 2012, and 2015 On account of the outbreaks of wild polio viruses and vaccine derived polioviruses, National Immunization Days were organized for all under 5-year children of Myanmar in November-December 2007 and January-February 2009. As a continuation of NIDs in 2007 and 2009, in 2010, two rounds of Sub-National Immunization Days (SNIDs) were implemented in 81 townships from 7 states/regions on the 3rd & 4th of April 2010 and 1st& 2nd of May 2010.

Two cases of circulating VDPV type 2 occurred in 2015. The two cases are from the same township in Rakhine state. As a result, the Ministry of Health, supported by WHO, UNICEF, and partners of the Global Polio Eradication Initiative, is engaging in implementing an outbreak response plan. In response to the emergence of the two circulating VDPV, the Ministry of Health is conducting intensive outbreak immunization responses with trivalent oral polio vaccine (tOPV), i.e., mopping up immunization in Rakhine and adjacent townships through five rounds, conducting subnational immunization days in 149 townships in January 2016 targeting 2.8 million, and National immunization days in February 2016 targeting 4.6 million under five.

1.3.2.2. Measles elimination

Myanmar reached the goal of 90% measles mortality reduction. However, to sustain these gains and achieve progress towards elimination, the country needs to achieve a higher coverage of MCV1 and MCV2. As a result, it is conducting measles and/or measles-rubella SIAs every three years. These SIAs were conducted in 2012 and 2015. The 2015 was a catchup campaign for children from 9 months to 15 years and was conducted in January and February. It had two phases: one campaign with school age children and another targeting children under five living within communities along with children missed in Phase 1. The campaign covered nearly 65,000 villages and 45,000 schools through 12,000 vaccination teams. Overall coverage of MR campaign was 94 percent.

1.3.2.3. Tetanus Elimination

Myanmar has conducted a series of Supplementary Immunization Activities for women of child-bearing age (15-45 years) since 1999. All women of child bearing age in these townships have been targeted with three rounds of SIA's. The target for MNT is to maintain for there to be less than one case per 1000 live births in each township by 2019. Myanmar achieved MNT elimination in 2010.

1.3.3.Immunization Program Financing

The main sources of financing for the routine immunization program were the government, GAVI, WHO, and UNICEF. The Government of Myanmar funding to the programme is in terms of human resources, their salaries, the facilities and its establishment and operational costs. Other sources of financing to CEPI come from multilateral agencies such as UNICEF, WHO, and GAVI. GAVI is supporting the country through the purchase of new and underused vaccines as well as immunization services support and health system strengthening. Another agency, 3MDG, is funded by a consortium of donors (AusAID, Danida, European Union, DFID, Sweden, Switzerland, and USAID) provide support for several townships, including operational costs for outreach for immunization as well as support for the cold chain. The World Bank health project is also providing support to several townships, including operational costs for outreach for immunization.

UNICEF, GAVI and WHO support the Government of Myanmar with logistics and operational costs. All Vaccines are procured by UNICEF or through UN procurement system. UNICEF has been providing technical support and guidance in accelerating the implementation of UNICEF supported interventions mainly in the areas of cold chain, vaccine management, and communication as well as purchasing traditional vaccines.

UNICEF has been purchasing traditional vaccines for the government as well as providing support for the cold chain. WHO also provides technical support to the country for surveillance and training. Both UNICEF and WHO provide support for SIAs.

SIAs are funded by WHO and UNICEF as well as different donors such as the UN Foundation. Support for surveillance is from CDC, Rotary and the UN Foundation.

1.3.4. Human Resources

The key service provider for the immunization programme is the midwife who is based at the sub-centre level and receives training of 18 months duration. The midwife has multiple responsibilities such as maternal and child care, nutrition, and communicable disease control. The midwife is the only worker that can administer vaccinations other than nurses and is often overburdened since they need to conduct outreach and mobile immunization over large geographical areas. There is now some discussion to have public health supervisors work with the midwives to assist in vaccination logistics.

1.3.5. Transport

Vaccines are received in the central vaccine store in Yangon and then distributed from the central store to 22 sub National stores (sub-depots). The townships collect the vaccines from these sub depots. At the RHC/Station hospital level, the midwives make arrangements for provision of wet ice either through private ice manufacturers or the township health department.

According to the 2016 cEVM, some challenges exist with the distribution system for vaccines. That is, the distribution system for vaccines and injection supplies is fragmented and only reaches some of the sub-depots (16) for vaccines and 17 regional/state transit hubs for dry goods throughout the country. The CMSD has an established outsourced system for both road and air transport throughout the country, but challenges cause backup methods to be utilized frequently. As mentioned above, midwives are not receiving adequate resources for vaccine transport, purchasing of wet ice and supervision and this reduces the frequency of outreach and mobile activities. Two projects – 3MDG and the World Bank – are currently trying to address this constraint in their work in selected townships with hard-to-reach populations and are providing operational costs for outreach.

1.3.6. Cold Chain

The cold chain system in Myanmar is a three-tiered system. Vaccines are stored at three locations: the Central Store, sub-Depots in the States/Regions and Townships. According to the cEVM Improvement plan for Myanmar, as new vaccines are introduced, the country will need additional storage capacity for vaccines and dry goods. The central store will need to be expanded as well as the space available to store dry goods. Specifically, it will need additional storage from the current 175m3 gross storage capacity for vaccines at 2-80C and at some Sub Depot stores (cEVM Improvement Plan 2016).

The 2016 cEVM Improvement Plan for Myanmar states that there are large numbers of non-functional cold chain equipment at stores, which either cannot be repaired, or in some cases use CFC refrigerant. This equipment should be disposed on in an environmental friendly manner and removed from inventory. Flooding in 2015 also damaged cold chain equipment in 6 regions.

1.3.7 Surveillance

Surveillance of vaccine preventable diseases is conducted by a network of surveillance medical offices and laboratories. There is one national surveillance coordinator and seventeen regional surveillance officers. The surveillance is conducted on five diseases at national laboratories: polio, measles, rubella, and rotavirus. Surveillance activities are largely funded by the Global Polio Eradication Initiative but may need to find other sources of funding in the future

Myanmar's non-polio AFP rate is 1.82 per 100,000 in 2015 and its non-measles-rubella discard rate is 0.57 per 100,000. The non-polio AFP rate is meeting international targets of >1 per 100,000 but the non-measles-rubella discard rate does not yet meet the target of 2 per 100,000.

Some ways in which surveillance could be strengthened are to expand measles case-based surveillance, establish Japanese encephalitis surveillance, and establish sentinel hospital surveillance for congenital rubella syndrome (CRS).

Surveillance of vaccine preventable diseases by case based surveillance of AFP, measles -rubella surveillance, AES surveillance and other VPD surveillance showed the trend over the years from 2007 to 2014 as shown in the following table.

Table 6. Reported cases of Vaccine Preventable diseases, 2006-2010 (WHO/UNICEF JRF 2007-2014)

Year	2007	2008	2009	2010	2011	2012	2013	2014
Polio (wild & VDPV)	15	0	0	1	0	1	0	0
Diphtheria	5	3	19	4	7	19	38	29
Pertussis	13	5	3	0	5	2	14	5
Measles(Clinical+ virological)	1088	333	217	190	2046	2175	1010	122
Neonatal Tetanus	49	25	34	19	32	29	39	32
Rubella	2	5	13	11	103	21	23	30
Japanese Encephalitis	28	5	8	18	20	14	3	50

1.3.8. Summary of Immunization Programme Strengths and Challenge

The CEPI programme has several strengths as shown in Table 6:

- The CEPI is a strong programme and is reaching more than 75% of all beneficiaries with all antigens leading to an overall reduction of the burden of vaccine preventable diseases;
- The programme is making good progress against the Global Vaccine Action Plan Goals of polio elimination, tetanus elimination, and new vaccines. It is also making progress towards measles/rubella elimination; and
- The CEPI has introduced several innovations in its efforts to reach hard-to-reach communities.
- CEPI has introduced several new vaccines into routine immunization

Challenges of the program that have been identified include the following:

- Inequities in immunization service delivery in border and conflict areas, among urban migrants, and geographically hard to reach areas
- Lack of capacity in cold chain and vaccine management;
- Limited financing for transport and logistics for outreach; and
- Overworked human resources for immunization.
- High dependence on external partners for financing of the program

Section II. Immunization program objectives and strategies

2.1. National priorities, NIP objectives and milestones

The goal of the Myanmar immunization program is to decrease VPD associated morbidity, mortality and disability

The objective of the Myanmar Immunization Plan is to improve performance of the immunization system that is measured in terms of coverage and equity as listed below in Table 7:

Table 7. Indicators for CEPI for 2017-2021

	Indicators	Baseline 2015	2017	2018	2019	2020	2021
1.	**Increase DTP3 coverage**	78%	82%	84%	86%	88%	90%
2.	**Increase Measles-Rubella 1 coverage**	86%	88%	90%	92%	94%	95%
3.	**Increase the % of population protected at birth from neonatal tetanus with TT or Td**	80%	82%	82%	84%	86%	88%
4.	**Increase OPV3 coverage**	78%	82%	84%	86%	88%	90%
5.	**Increase PCV coverage**	NA	82%	84%	86%	88%	90%
6.	**Increase IPV coverage**	8%	80%	84%	86%	88%	90%
7.	**Increase Rota vaccine coverage**	NA	NA	50%	80%	83%	85%
8.	**Decrease dropout rate - % point difference between DTP1 and DTP3 coverage**	15%	14%	12%	10%	8%	6%

2.1.1. Programme Objectives and Strategies

The objectives of the program are the following:

- To strengthen immunization program management, human resources, financing and service delivery to provide equitable service to all target population including special strategy for peri urban, slum, migratory population, geographically and socially hard to reach and conflict area
- To improve demand creation and ownership towards immunization through community participation and communication
- To strengthen immunization supply chain, vaccine management and build stronger cold chain systems at all levels
- To achieve the goals of eradication, elimination and control of VPDs
  a. To maintain zero polio cases (both WPV and VDPV)
  b. To maintain MNT elimination status
  c. To achieve elimination of measles and control of rubella and CRS by 2020
  d. To achieve control of Japanese Encephalitis and other VPDs
- To strengthen and maintain strong surveillance system for AEFI and other priority VPDs

- To introduce new and underused vaccines and new technology into routine immunization supported by evidence of disease burden

2.2. Objectives, Strategies and key activities

The first objective is to strengthen immunization program management, human resources, financing and service delivery to provide equitable service to all target population including special strategy for peri-urban, slum, migratory population, geographically and socially hard to reach and conflict area

The strategies and activities for this objective are the following:

Strategy 1.1: Ensure every township has an updated "reach every community micro plan"

Activity 1.1.1: Update REC micro planning in townships and state/region with involvement of community

Strategy 1.2: Develop special approach to reach peri urban, slum, migratory population, geographically and socially hard to reach and conflict area with vaccination including innovative ways of vaccine delivery in urban areas

Activity 1.2.1: Develop a special strategy to reach peri-urban, migratory population, conflict and hard to reach areas

Activity 1.2.2: Implement the special strategy to reach peri-urban, migratory population, conflict and hard to reach areas

Activity 1.2.3: Contract a third party for vaccine transportation in urban settings

Strategy 1.3: Develop an effective and efficient system for immunization system performance monitoring and quality data management

Activity 1.3.1: Develop data management tool in accordance with HMIS

Activity 1.3.2: Conduct data management training at the township, state, and regional level

Activity 1.3.3: Review EPI performance at the township quarterly, state and region every six months, and central level every six months

Activity 1.3.4: Develop an EPI dashboard

Activity 1.3.5: Conduct participatory head count of total and target populations with BHS, volunteers and CSO for better estimation of denominators

Strategy 1.4: Use of innovation, new technology, integration and research to ensure high coverage

Activity 1.4.1: Develop innovative tools and technology to ensure high coverage

Activity 1.4.2: Conduct operational research on these tools and innovative approaches

Activity 1.4.3: Conduct workshop on integration of EPI with other programs

Strategy 1.5: Involve private sector, local CBOs and education sector (including other relevant government line agencies) for equitable immunization service

Activity 1.5.1: Develop policy and strategy for involvement of private sector, education and CBOs to support EPI

Activity 1.5.2: Conduct EPI service in collaboration with private sector in townships

The second objective is to improve demand creation and ownership towards immunization through community participation and communication. The following are the strategies and activities for this objective.

Strategy 2.1: Build community ownership through community participation and local resource mobilization in immunization service delivery

Activity 2.1.1: Conduct orientation and review meetings with HFMC

Activity 2.1.2: Declare villages and townships as fully immunized if have achieved high coverage

Activity 2.1.3: Develop, print and distribute IEC materials on community ownership

Activity 2.1.4: Identify and develop short videos on "local heroes"

Strategy 2.2: Initiate performance based incentives for the village/townships declaring themselves as "fully immunized"

Activity 2.2.1: Develop guidelines on performance based reward for full immunization

Activity 2.2.2: Implement performance based incentives for full immunization

Activity 2.2.3: Arrange for community leaders to share experiences with others across states and regions

Strategy 2.3: Review, develop and implement effective immunization communication plan including risk communication

Activity 2.3.1: Develop effective and innovative communication tools and material

Activity 2.3.2: Develop communication materials and print and distribute these

Activity 2.3.3: Conduct advocacy meetings at all levels

Activity 2.3.4: Involve celebrities for immunization

Strategy 2.4: Conduct Knowledge, Attitude and Practices (KAP) study to inform communication for immunization.

Activity 2.4.1: Conduct KAP study

Activity 2.4.2: Disseminate findings of KAP and develop new tools based on the findings

Strategy 2.5: Develop evidence based communication materials and tools

The third objective is to strengthen immunization supply chain, vaccine management and build stronger cold chain systems at all levels. The strategies for this objective are the following:

Strategy 3.1: Establish the electronic logistics management information systems (eLMIS) using modern technologies

Activity 3.1.1: Mapping of existing LMIS initiatives (e.g. msupply, comCare, etc.)

Activity 3.1.2: Develop EPI specific eLMIS using available technologies

Activity 3.1.3: Provide necessary tools and equipment for the eLMIS

Activity 3.1.4: Roll-out the introduction of the eLMIS including training, monitoring, and evaluation for scale

Strategy 3.2: Strengthen immunization stock management

Activity 3.2.1: Establish a well-functioning EPI store for both vaccines and dry goods (Construction of new storage facilities at central level for cold rooms and dry goods)

Activity 3.2.2: Conduct capacity building of CEPI and DOPH (Procurement and supply unit) in stock management

Strategy 3.3: Expand the cold chain network in Rural Health Centres and Sub-Centres prioritizing hard-to-reach areas to increase vaccine availability and number of immunization sessions.

Activity 3.3.1: Establish solar refrigerators to prioritized 120 townships (hard to reach and low performing areas)

Activity 3.3.2: Replace non-functional and aged equipment more than 10 years old

Activity 3.3.3: Expansion of cold chain system to include more Rural Health Centres and sub-centres

Activity 3.3.4: Provide cold chain equipment to regional and state hospitals to ensure that immunization sessions are held regularly.

Strategy 3.4: Implement the effective vaccine management improvement plan

Activity 3.4.1: Provide temperature monitoring devices and temperature monitoring plan including conducing temperature mapping and monitoring studies

Activity 3.4.2: Update Standard Operating Practices and disseminate to all cold chain points

Activity 3.4.3: Review the status of implementation of EVM improvement plan

Activity 3.4.4: Plan and implement new Effective vaccine management assessment

Strategy 3.5: Strengthen cold chain inventory management system including establishment of a web-based cold chain inventory database

Activity 3.5.1: Update the cold chain inventory on a quarterly basis

Activity 3.5.2: Establish the electronic inventory management system

Activity 3.5.3: Provide essential tools for inventory management

Strategy 3.6: Develop a comprehensive cold chain repair and maintenance plan

Activity 3.6.1: Conduct an assessment of faulty cold chain equipment

Activity 3.6.2: Identify spare parts needed for repair and maintenance

Activity 3.6.3: Outsource the repair and maintenance of cold chain equipment through a third party company

Activity 3.6.4: Conduct capacity building of cold chain engineers in repair of cold chain and maintenance including having a study tour to cold chain training centres and other countries

Strategy 3.7: Conduct a cold chain capacity analysis and develop cold chain replacement and expansion

Activity 3.7.1: Review the updated cold chain inventory

Activity 3.7.2: Provide technical support to undertake a comprehensive cold chain capacity gap analysis using the EPI logistics forecasting tools

Strategy 3.8: Conduct capacity building of cold chain key persons on cold chain and vaccine management

Activity 3.8.1: Conduct a training needs assessment of all CCKPs
Activity 3.8.2: Develop training materials and job aids for CCKPs
Activity 3.8.3: Conduct cascade training sessions at all levels

The fourth objective is to achieve the goals of eradication, elimination and control of VPDSs. The strategies and activities for this objective are the following:

Sub-Objective 1: To maintain zero polio cases (both WPV and VDPV)

Strategy 4.1: To maintain zero polio cases (both WPV and VDPV)

Activity 4.1.1: Conduct risk assessment for polio
Activity 4.1.2: Conduct polio campaign in high risk populations

Strategy 4.2: Maintain strong AFP surveillance system in place

Activity 4.2.1: Mobilize resources to maintain RSO network
Activity 4.2.2: Conduct orientation on AFP surveillance
Activity 4.2.3: Report, record, investigate and collect samples for each AFP case
Activity 4.2.4: Support polio lab
Activity 4.2.5: Support the activities of different polio committees
Activity 4.2.6: Conduct environmental surveillance

Strategy 4.3: Develop and implement polio endgame strategic plan

Activity 4.3.1: Develop polio endgame strategic plan
Activity 4.3.2: Implement activities as per endgame plan

Sub-Objective 2: Maintain MNT elimination status

Strategy 4.4: Initiate TT campaign in high risk townships

Activity 4.4.1: Conduct risk assessment of MNT
Activity 4.4.2: Initiate Td campaign in high risk areas

Strategy 4.5: Maintain MNT surveillance standards

Activity 4.5.1: Conduct integrated MNT surveillance
Activity 4.5.2: Conduct training and orientation on MNT surveillance
Activity 4.5.3: Conduct advocacy meetings

Sub-Objective 3: To achieve elimination of measles and control of rubella and CRS by 2020

Strategy 4.6: Achieve high routine immunization coverage of both MCV1 and MCV2

Strategy 4.7 Conduct MR campaign targeting all children 9 months to 5 years of age in 2018 and 2021

Activity 4.6.1: Conduct MR campaign in children 9 months – 5 years of age
Activity 4.3.2: Conduct risk assessment for measles and rubella and population immunity profile

Strategy 4.7: Strengthen laboratory supported case-based measles and rubella surveillance

Activity 4.7.1: Expand case based measles and rubella surveillance
Activity 4.7.2: Conduct orientation on measles and rubella surveillance

Activity 4.7.3: Collect samples and transport to lab
Activity 4.7.4: Implement CRS surveillance
Activity 4.7.5: Provide support to lab

Strategy 4.8: Develop measles elimination and rubella and CRS control strategy plan 2016-2020

Activity 4.8.1: Develop measles elimination and rubella and CRS control strategy plan
Activity 4.8.2: Implement activities based on the plan

Sub-Objective 4: To control mortality and Japanese Encephalitis

Strategy 4.9: Conduct JE campaign targeting all children 9 months to 15 years of age by 2017

Activity 4.9.1: Develop guidelines for JE campaign
Activity 4.9.2: Conduct JE campaign

Strategy 4.10: Initiate strong AES surveillance system in place

Activity 4.10.1: Develop guidelines and training materials for AES surveillance
Activity 4.10.2: Conduct training on AES surveillance
Activity 4.10.3: Provide support to lab for AES surveillance
Activity 4.10.4: Improve collection and transportation of samples to laboratories

Strategy 4.11: Ensure introduction of JE vaccine into routine immunization

Activity 4.11.1: Develop JE introduction guidelines
Activity 4.11.2: Conduct training on JE introduction
Activity 4.11.3: Conduct advocacy meeting on JE introduction

The fifth objective is to strengthen and maintain strong surveillance system for vaccine preventable diseases (VPDs) and adverse events following immunization (AEFI). The strategies and activities for this objective is the following:

Strategy 5.1: To strengthen Rotavirus, IBD, typhoid, cholera and other priority VPDs surveillance

Activity 5.1.1: Conduct surveillance for rotavirus, typhoid and other VPDs
Activity 5.1.2: Conduct training on VPD surveillance
Activity 5.1.3: Develop IEC and training materials on VPDs

Strategy 5.2: Conduct disease burden studies for priority VPDs

Activity 5.2.1: Conduct disease burden and impact studies
Activity 5.2.2: Conduct cost-effectiveness of new vaccines and VPDS

Strategy 5.3: Develop strong data management system for other priority VPD surveillance

Activity 5.3.1: Develop data management tools
Activity 5.3.2: Train health staff on data management
Activity 5.3.3: Establish data management cell
Activity 5.3.4: Expand eHMIS system and reporting

Strategy 5.4: Maintain strong AEFI surveillance and pharma co-vigilance system in place

Activity 5.4.1: Conduct training on AEFI
Activity 5.4.2: Support AEFI surveillance

Activity 5.4.3: Conduct investigation of AEFI cases
Activity 5.4.4: Develop guidelines on pharma co-vigilance system
Activity 5.4.5: Support the National Regulatory Authority

The sixth objective is to introduce new and underused vaccines and new technology into routine immunization supported by evidence of disease burden and financial sustainability. The strategies and activities for this objective is the following:

Strategy 6.1: Introduction of JE, rotavirus, and HPV vaccines into routine immunization program.

Activity 6.1.1: Develop implementation guidelines and training materials on new vaccine introduction
Activity 6.1.2: Conduct training on new vaccine introduction
Activity 6.1.3: Conduct advocacy meetings on new vaccine introduction

Strategy 6.2: Develop financial sustainability plan including creation of "immunization trust fund"

Activity 6.2.1: Develop financial sustainability plan
Activity 6.2.2: Conduct activities of financial sustainability plan
Activity 6.2.3: Conduct cost-effectiveness studies

2.3 Alignment with GVAP, Regional Targets and Health Sector Strategy

The national cMYP is aligned with most of GVAP and regional targets as shown in Annex 1 'GVAP Checklist'.

Section III. Implementation and M&E

3.1 Timelines for the cMYP

Table 8 shows the timelines for the cMYP activities.

Table 8. Timeline for Strategies and Objectives for cMYP, 2017-2021

SN	Activities	Year				
		2017	2018	2019	2020	2021
1.To strengthen immunization program management, human resources, financing and service delivery to provide equitable service to all target population including special strategy for peri urban, slum, migratory population, geographically and socially hard to reach and conflict area						
1.1	*Strategy: Ensure every township has a updated "reach every community micro plan"*					
1	*Update REC micro planning in townships and state/region with involvement of community*	*50*	*80*	*80*	*80*	*40*
1.2	*Strategy: Develop special strategy to reach peri urban, slum, migratory population, geographically and socially hard to reach and conflict area with vaccination including innovative ways of vaccine delivery in urban areas*					
1	*Develop special strategy to reach peri-urban, migratory population, conflict and hard to reach areas*	*x*				
2	*Implement special strategy*	*10*	*20*	*20*	*20*	
3	*Use of third party for vaccine transportation in urban setting*	*x*	*x*	*x*	*x*	*x*
1.3	*Effective and efficient system for immunization system performance monitoring and quality data management system is in place*					
1	*Data management training at township, state and regional level*	*50*	*100*	*100*	*100*	
2	*Develop data management tool in accordance with HMIS*	*x*	*x*			
3	*Review of EPI performance at township (quarterly), state, regional (Bi six monthly) and central level (Bi-six monthly)*	*x*	*x*	*x*	*x*	*x*
4	*Develop EPI dash board*	*x*				
1.4	*Strategy: Use of innovation, new technology, integration and research to ensure high coverage*					
1	*Develop innovative tools and technology*	*x*	*x*	*x*	*x*	*x*
2	*Conduct operational researches*	*x*	*x*	*x*	*x*	*x*
3	*Conduct workshop on integration of EPI with other program*	*x*	*x*	*x*		
1.5	*Strategy: Involvement of private sector, local CBOs and education sector (including other relevant government line agencies) for equitable immunization service*					
1	*Develop policy and strategy for involvement of private sector, education and CBOs to support EPI*	*x*	*x*			
2	*Conduct EPI services in collaboration with private sector in townships*	*20*	*50*	*100*	*100*	*50*
2. Improve demand creation and ownership towards immunization through community participation and communication						
2.1	*Strategy: Build community ownership through community participation and local resource mobilization in immunization service delivery*					

1	*Orientation and review meetings with HFMCv*	*100*	*100*	*100*	*30*	*0*
2	*Declare full immunization villages and townships*	*50*	*50*	*100*	*100*	*30*
3	*Develop, print and distribute IEC materials*	*x*	*x*	*x*	*x*	*x*
4	*Identify and develop short videos on "local heroes"*	*x*	*x*	*x*	*x*	*x*
2.2	*Strategy: Initiate performance-based incentive for the village/townships declaring themselves as "fully immunized"*					
1	*Develop guidelines on performance-based rewards for full immunization*	*x*	*x*			
2	*Implement performance-based incentives for local development committees for full immunization*	*50*	*50*	*100*	*100*	*30*
3	*Experience sharing visits to other state and regions by community leaders*	*50*	*100*	*100*	*100*	
2.3	*Strategy: Review, develop and implement effective immunization communication plan including risk communication*					
1	*Develop effective and innovative communication tools and materials*	*x*	*x*	*x*		
2	*Development of communication materials, print and distribute*	*x*	*x*	*x*	*x*	*x*
3	*Conduct advocacy meetings at all levels*	*x*	*x*	*x*	*x*	*x*
4	*Involve celebrities for immunization*	*x*	*x*	*x*	*x*	*x*
2.4	*Strategy: Conduct Knowledge, Attitude and Practices (KAP) study to inform communication for immunization.*					
1	*Conduct KAP study*	*x*	*x*			
2	*Dissemination of KAP findings and develop new tools based on the findings*	*x*	*x*	*x*		
3. To strengthen immunization supply chain, vaccine management and build stronger cold chain systems at all levels						
3.1	*Strategy: Establish the electronic logistics management information systems (eLMIS) using modern technologies*					
3.1.1	*Mapping of existing LMIS initiative (e.g. msupply, comCare etc)*	*x*				
3.1.2	*Develop EPI specific eLMIS using available technologies*	*x*				
3.1.3	*Provide necessary tools and equipment for the system*	*x*				
3.1.4	*Roll-out the introduction of the system including training, monitoring the use and evaluation for scale up*	*x*	*x*	*x*		
3.2	*Strategy: Strengthen immunization stock management*					
3.2.1	*Establish a well-functioning EPI store for both vaccines and dry good (Construction of new storage facilities at central level for cold rooms and dry goods)*	*x*		*x*		
3.2.2	*Capacity building of CEPI and DOPH (Procurement and Supply unit) in stock management*	*x*		*x*		
3.3	*Strategy: Expansion of cold chain network to Rural Health Centres and Sub-centers prioritizing hard to reach areas to increase vaccine available and number of immunization sessions.*					

3.3.1	*Provide solar refrigerators to prioritized 120 Townships (hard to reach and low performing)*	*x*	*x*	*x*		
3.3.2	*Replace non-functional and aged equipment which are more than 10 years*	*x*	*x*	*x*	*x*	*x*
3.3.3	*Expansion of cold chain system to include more Rural Health Centers and sub-centers*	*x*	*x*	*x*	*x*	*x*
3.3.4	*Provide cold chain equipment to regional and state hospitals to ensure the immunization sessions are held regularly.*	*x*	*x*	*x*	*x*	*x*
3.4	*Strategy: Implement the effective vaccine management improvement plan*					
3.4.1	*Provision of temperature monitoring devices and temperature monitoring plan including conducting temperature mapping and monitoring studies*	*x*	*x*	*x*	*x*	*x*
3.4.2	*Update SOPs and disseminate to all cold chain points*	*x*		*x*		
3.4.3	*Review the status of implementation of EVM improvement plan*	*x*	*x*	*x*	*x*	*x*
3.4.4	*Plan and implement new Effective vaccine management assessment*		*x*			
3.5	*Strategy: Strengthen cold chain inventory management system including establishing the web-based cold chain inventory database*					
3.5.1	*Update the cold chain inventory on quarterly basis*	*x*	*x*	*x*	*x*	*x*
3.5.2	*Establish the electronic inventory management system*	*x*				
3.5.3	*Provide essential tools for inventory management*	*x*		*x*		*x*
3.5	*Strategy: Develop a comprehensive cold chain repair and maintenance plan*					
3.5.1	*Assessment of the fault cold chain equipment*	*x*	*x*	*x*	*x*	*x*
3.5.2	*Identify spare parts needed for repair and maintenance*	*x*	*x*	*x*	*x*	*x*
3.5.3	*Outsource of repair and maintenance of cold chain repair and maintenance through a third party company*	*x*	*x*	*x*	*x*	*x*
3.5.4	*Capacity building of cold chain engineers in cold chain repair and maintenance including study tour to cold chain training centers and other countries*	*x*	*x*	*x*	*x*	*x*
3.6	*Strategy: Cold Chain capacity gap analysis and develop cold chain replacement and expansion plan*					
3.6.1	*Review the update cold chain inventory*	*x*		*x*		*x*
3.6.2	*Technical support to undertake a comprehensive cold chain capacity gap analysis using the EPI logistics forecasting tools*	*x*		*x*		*x*
3.7	*Strategy: Capacity Building of cold chain key persons on cold chain and vaccine management*					
3.7.1	*conduct training needs assessment of all CCKPs*	*x*				
3.7.2	*Develop training materials and job-aids for CCKPs*	*x*				
3.7.3	*Conduct cascade training sessions at all levels*	*x*	*x*	*x*	*x*	*x*
4. to achieve the goals of eradication, elimination and control of VPDs						
	Sub-objective 1: To maintain zero polio cases (both WPV and VDPV)					

4.1	*Strategy: Periodic risk assessment and polio campaign in high risk districts*					
1	*Conduct risk assessment for polio*	*x*	*x*	*x*	*x*	*x*
2	*Conduct polio campaign in high risk population*	*50*	*50*	*50*	*50*	*50*
4.2	*Strategy: Maintain strong AFP surveillance system in place*					
1	*Mobilize resources to maintain RSO network*	*x*	*x*	*x*	*x*	*x*
2	*Orientation on AFP surveillance throughout the country*	*x*	*x*	*x*	*x*	*x*
3	*Report, record, investigate and collect sample for each AFP case*	*x*	*x*	*x*	*x*	*x*
4	*Support polio lab*	*x*	*x*	*x*	*x*	*x*
5	*Support the activities of different polio committees*	*x*	*x*	*x*	*x*	*x*
6	*Conduct environmental surveillance*		*x*	*x*	*x*	*x*
4.3	*Strategy: Develop and implement polio endgame strategic plan*					
1	*Develop and update polio endgame strategy plan*	*x*				
2	*Implement activities as per endgame plan*	*x*	*x*	*x*	*x*	*x*
	Sub-Objective 2: To maintain MNT elimination status					
4.4	*Strategy: Initiation of TT/Td campaign in high risk townships*					
1	*Conduct risk assessment*	*x*	*x*	*x*	*x*	*x*
2	*Conduct Td campaign in high risk areas*	*30*		*30*		*30*
4.5	*Strategy: Maintaining NNT surveillance standards*					
1	*Conduct integrated VPD surveillance*	*x*	*x*	*x*	*x*	*x*
2	*Training and orientation of MNT*	*x*	*x*	*x*	*x*	*x*
3	*Conduct advocacy meetings*	*x*	*x*	*x*	*x*	*x*
	Sub-Objective 3: To achieve elimination of measles and control of rubella and CRS by 2020					
4.6	*Strategy: MR campaign targeting all children 9 months to 5 years of age in 2018 and 2021*					
1	*Conduct MR campaign in children 9month-5 years of age*		*x*			*X*
2	*Conduct risk assessment for measles and rubella*	*x*		*x*	*x*	
4.7	*Strategy: Strengthen laboratory supported case-based measles and rubella surveillance*					
1	*Expand case based surveillance sites*	*x*	*x*	*x*	*x*	*X*
2	*Conduct orientation on measles and rubella surveillance*	*x*	*x*	*x*	*x*	*X*
3	*Collect samples and transport to lab*	*x*	*x*	*x*	*x*	*X*
4	*Implement CRS surveillance*	*x*	*x*	*x*	*x*	*X*
5	*Provide support to lab*	*x*	*x*	*x*	*x*	*X*
4.8	*Strategy: Develop measles elimination and control of rubella/CRS strategy plan 2016-2020*					
1	*Develop measles elimination and rubella and CRS control strategy plan*	*x*				
2	*Implement activities based on the plan*	*x*	*x*	*x*	*x*	*X*
	Sub-Objective 4: To control mortality and morbidity from Japanese Encephalitis					
4.9	*Strategy: JE campaign targeting all children 9 months to 15 years of age throughout the country by 2017*					
1	*Develop guidelines on JE campaign*	*x*				

2	Conduct JE campaign	x				
4.10	Strategy: Initiate strong AES surveillance system in place					
1	Develop guideline and training materials on AES surveillance	x				
2	Conduct training on AES surveillance	x	x	x	x	x
3	Provide support to lab	x	x	x	x	x
4	Collection and transportation of samples to lab	x	x	x	x	x
4.11	Strategy: Ensure introduction of JE vaccine into routine immunization					
1	Develop introduction guideline		x			
2	Training on introduction		x	x	x	x
3	conduct advocacy meeting on introduction		x	x		
5. To strengthen and maintain strong surveillance system for VPDs and AEFI						
5.1	Strategy: Strengthen Rotavirus, IBD, typhoid, cholera and other priority VPDs surveillance					
1	Conduct surveillance for rotavirus, typhoid and other VPD	x	x	x	x	x
2	Training on VPD surveillance	x	x	x	x	x
3	Develop IEC and training materials on VPD surveillance	x	x	x	x	x
4	Provide lab support	x	x	x	x	x
5.2	Strategy: Conduct disease burden studies for priority VPDs					
1	Conduct disease burden studies	x	x	x	x	x
2	Conduct cost effectiveness of new vaccines and VPDs		x		x	
5.3	Strategy: Develop strong data management system for other priority VPD surveillance					
1	Develop data management tools	x	x			
2	Train BHS on data management	x	x	x	x	x
3	Establish data management cell	x	x	x		
5.4	Strategy: Maintain strong AEFI surveillance and pharmaco- vigilance system in place					
1	Conduct training on AEFI	x	x	x	x	x
2	Support AEFI surveillance	x	x	x	x	x
3	Conduct investigation of AEFI cases	x	x	x	x	x
4	Develop guideline on pharmaco-vigilance system	x	x			
6. To introduce new and underused vaccines and new technology into routine immunization supported by evidence of disease burden and financial sustainability						
6.1	Strategy: Introduction of JE, rota, HPV vaccines into routine immunization					
1	Develop implementation guidelines and training materials on new vaccine introduction	HPV	JE	Rota		
2	Conduct training on new vaccine introduction	x	x	x	x	
3	Conduct advocacy meetings on new vaccine introduction	x	x	x	x	
6.2	Strategy: Develop financial sustainability plan including creation of “immunization trust fund”					
1	Develop financial sustainability plan	x	x			
2	Conduct activities as per the plan	x	x	x	x	X
3	Conduct cost effectiveness studies	x	x	x	x	

Section IV. Immunization Program Costing and Financing

4.1 Current Program Costing and Financing

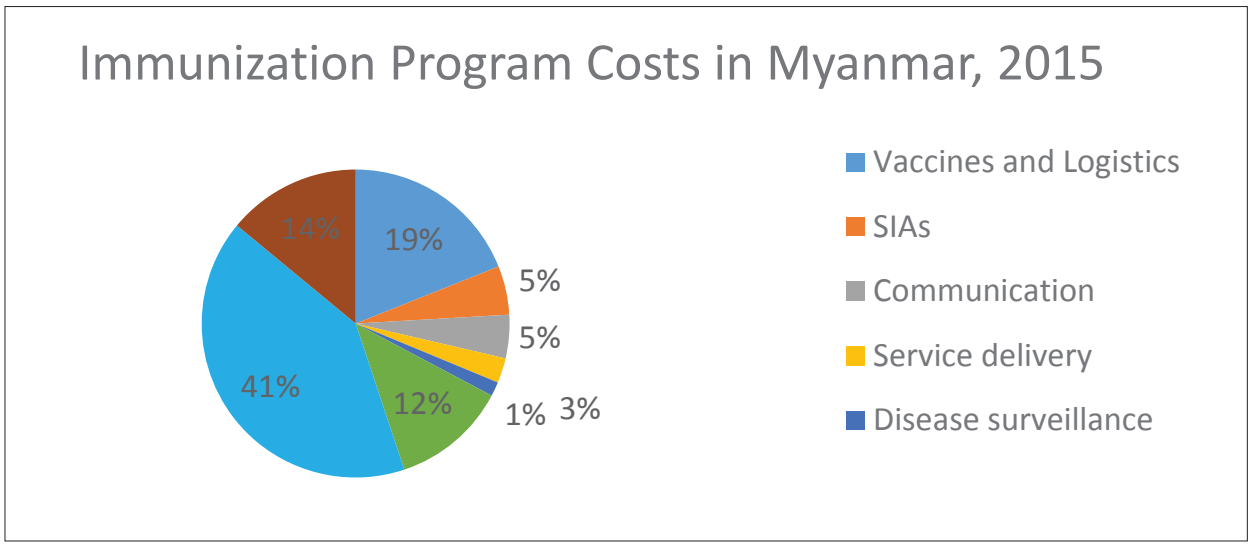
4.1.1 Current Program Costing

The total cost of the immunization program was USD $67.0 million in 2015 (see Table 9). Nineteen percent of the total cost was spent on routine vaccine supply and injection supplies for routine immunization. Another forty-one percent of the total was spent on SIAs. The remaining costs were allocated to program management (2%), service delivery (5%), disease surveillance (3%), and advocacy and communication (5%). The contribution of shared health system costs was 14%.

Table 9: Baseline Cost Profile of Immunization Program in 2015

Cost Category	Expenditure in 2015 (USD)	% of Total
Vaccine and Injection Supplies (Routine Immunization Only)	12,708,157	19%
Service Delivery	3,455,111	5%
Advocacy and Communication	3,041,338	5%
Monitoring and Disease Surveillance	1,752,758	3%
Program Management	1,012,618	1%
Capital Costs	$8,412,403	12%
Supplemental Immunization Activities (SIAs) (includes vaccine and operation costs)	27,568,686	41%
Shared Health Systems Costs	9,387,619	14%
Total	**67,338,690**	**100%**

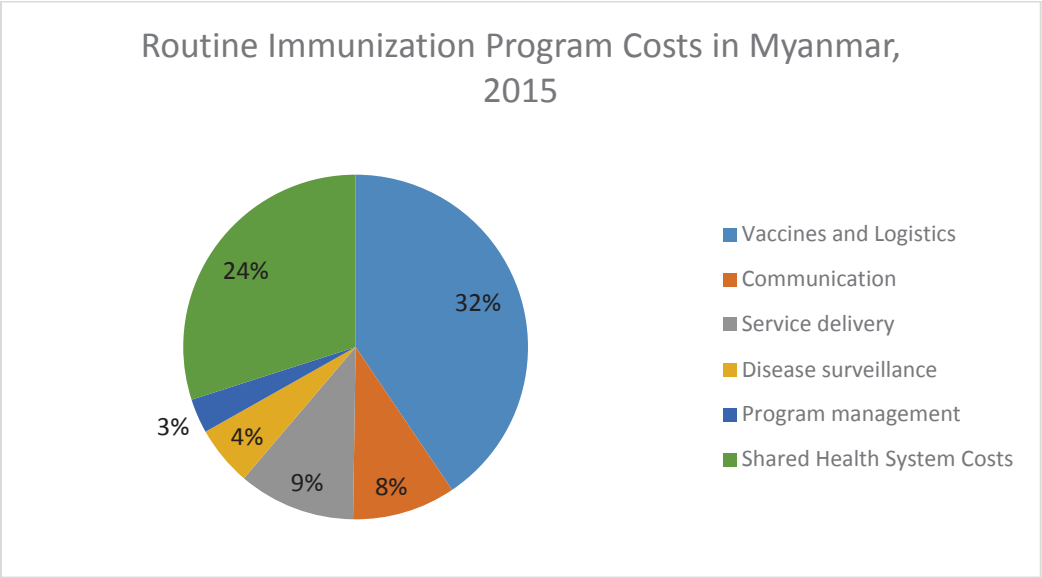
Figure 3: Baseline Cost Profile in 2015: Category-wise proportional distribution



4.1.2. ROUTINE IMMUNIZATION

The baseline cost profile for Routine Immunization in 2015 shows that vaccines and injection supplies comprised 32% of total costs, followed by shared health system costs (24%) and communication (8%). The remaining costs were for service delivery (9%), disease surveillance (4%), and program management (3%).

Figure 4: Baseline Routine Immunization Programme Costs in Myanmar in 2015



SIA costs were substantial in 2015 since the country conducted a large MR vaccine catchup campaign for children aged nine months to 15 years. Secondly, the country also had a polio vaccination campaign outbreak response for children under the age of five in December due to the emergence of two cases of vaccine derived polio vaccination. Table 10 shows that 88.7% of total SIA costs were for the more expensive MR campaign.

Table 10: Cost Profile of SIAs in Myanmar in 2015

Cost Category	Expenditure in 2015 (USD)	% of Total
MR Vaccines & Injection Supplies	11,782,214	42.6%
MR SIA Operational Costs	12,861,072	46.1%
Polio Outbreak Response Vaccines & Injection Supplies	2,925,400	10.5%
Polio Outbreak Response Operational Costs	225,400	0.8%
Total	**$27,568,686**	**100%**

4.1.3. Current Program Financing

Figure 5 shows the profile of immunization financing for the total immunization program. The government financed 7% of the immunization program. This funding went for health worker salaries, operational costs, transportation, and building costs. GAVI was the largest source of financing (56%) and financed over half of the costs of the program. The second largest source of financing was 3MDG (15%) and went towards purchasing new cold chain equipment through UNICEF. Other sources of financing were UNICEF funding for traditional vaccines and injection supplies (5%), GAVI funding implemented through UNICEF (6%) and WHO (4%) for training, microplanning, and IEC/social mobilization, and CDC funded channeled through WHO for surveillance and the polio SIA (7%). It should be noted that a few other agencies fund shared costs of the immunization program– e.g. the World Bank, and are not shown here due to lack of sufficient information.

Figure 5. Baseline Financing for the Immunization Program Financing, 2015

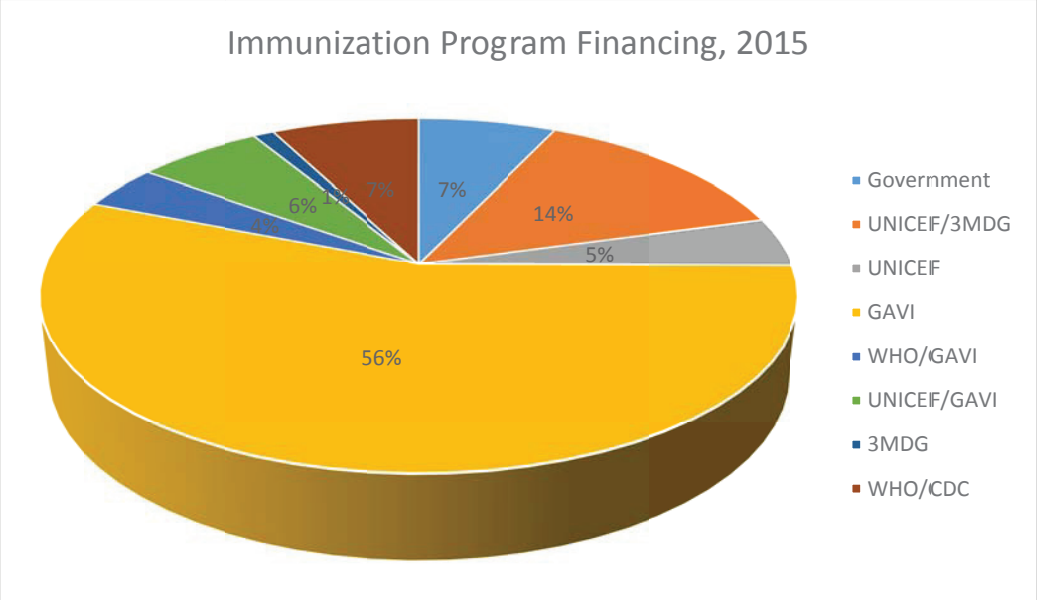
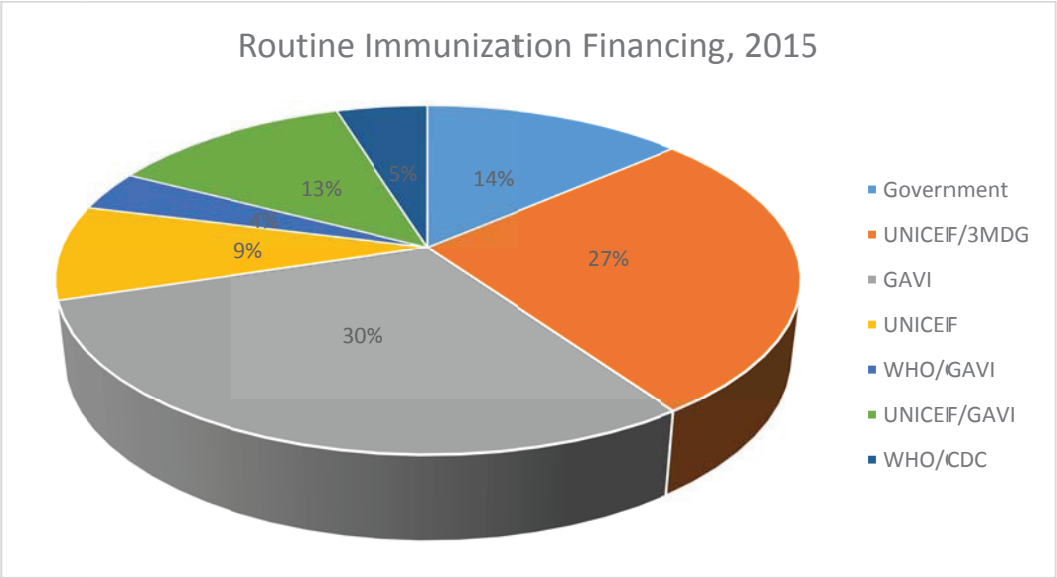


Figure 6 shows the sources of financing for the routine immunization program and does not include financing for SIAs. The government finances a larger proportion of the routine immunization program than the total program – 14%. Other sources of financing are GAVI (30%), 3MDG funding implemented through UNICEF (28%), UNICEF (9%), GAVI HSS funding implemented through WHO (4%) and UNICEF (13%), and CDC funding channeled through WHO (5%).

[1] The 3MDG project is funded by a consortium of agencies – AusAID, Danida, European Union, Swiss Confederation, Sweden, DFID, and USAID.

Figure 6. Baseline Financing for the Routine Immunization Program



4.1.4..Baseline Immunization Programme Indicators

Table 11 shows the baseline immunization programme indicators. Total programme expenditures with shared costs in 2015 were $67.3 million. The cost of routine immunization without shared costs (45% of total immunization expenditures) were $30.4 million and the cost per capita and per children that received three doses of pentavalent vaccine was $0.59 and $43.00, respectively. Expenditures on SIAs comprised 41% of total immunization expenditures.

Table 11. Baseline Immunization Financing Programme Indicators

Indicator	Expenditures
Total Immunization Expenditures (USD)	$57,951,072
Routine Immunization only (USD)	$30,382,386
SIAs (USA)	$27,568,686
Per Capita (Routine Only) (USD)	$0.59
Per DTP3 child (Routine Only) (USD)	$43.00
% Vaccines and supplies (Routine)	19%
% Government funding	14%
Total Shared Costs (USD)	$9,387,619
% Shared health systems cost	13.9%
TOTAL (USD)	**$67,338,691**

4.2 Future Resource Requirements

Total resource requirements for the immunization program are estimated to be $324.0 million during 2017-2021, as shown in Table 12. The largest share will go to vaccine supply, followed by shared health systems goods and supplemental immunization activities. The remaining requirements will go to service delivery, logistics, capital goods, communications, monitoring and disease surveillance, and program management.

Table 12. Future Immunization Program Resource Requirements, 2017-2021

Cost Category	USD	%
Vaccine Supply and Injection Supplies (Routine Immunization Only)	150,463,111	46%
Service Delivery	18,255,600	6%
Advocacy and Communication	7,962,181	3%
Monitoring and Disease Surveillance	9,250,949	3%
Program Management	22,319,389	7%
Routine Capital Costs	20,643,929	6%
Supplemental Immunization Activities (SIAs) (includes vaccine and operational costs)	32,664,967	10%
Shared Health Systems Costs	62,411,219	19%
Total	**323,971,344**	**100%**

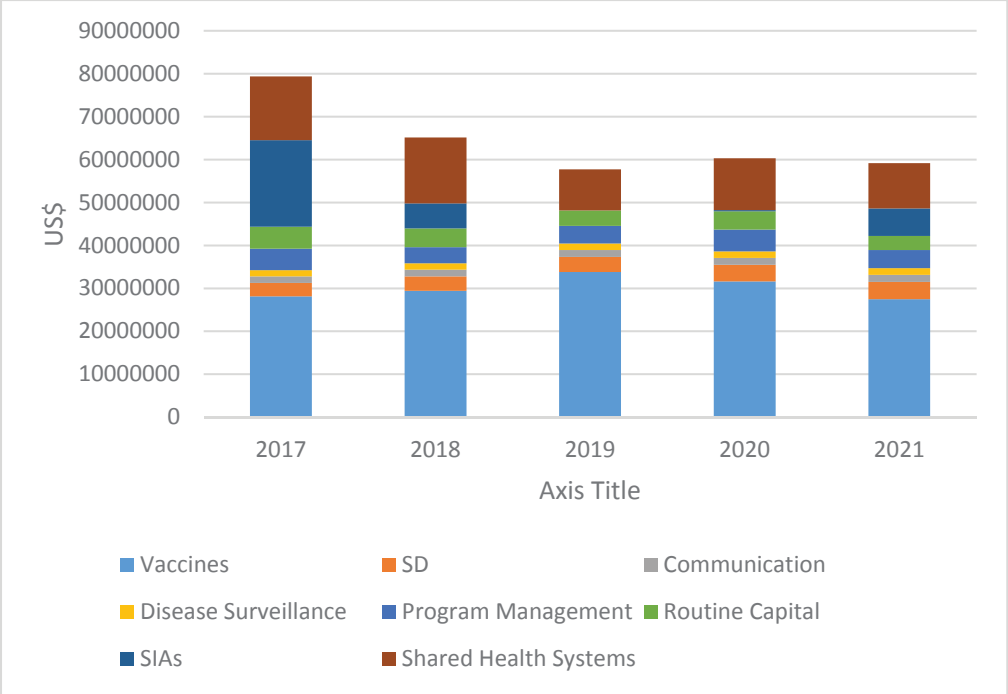
Table 12 shows the detailed resources requirement by cost components for the immunization programme in 2017-2021.

Table 13: Future resource requirements by cost categories for 2017-2021

COST CATEGORY	2017	2018	2019	2020	2021
ROUTINE IMMUNIZATION COSTS					
Traditional Vaccines	2,350,969	2,096,078	1,955,618	1,901,961	1,802,403
Underused Vaccines	187,802	618,379	491,345	480,351	449,573
New Vaccines	25,060,260	26,071,671	30,681,241	28,571,608	24,550,240
Injection supplies	530,226	645,408	669,585	681,336	667,057
Personnel (100% Immunization)	2,134,243	2,194,188	2,254,133	2,314,077	2,374,022
Transportation	757,880	828,682	851,231	983,334	1,009,217
Maintenance and overhead	1,456,842	1,753,114	2,036,437	2,295,784	2,580,315
Short-term Training	2,884,902	2,457,715	2,900,955	2,561,279	2,320,059
IEC/Social Mobilization	1,530,000	1,560,600	1,591,812	1,623,648	1,656,121
Disease Surveillance	1,441,260	1,470,085	1,499,487	1,529,477	1,560,066
Program Management	1,295,400	343,332	84,897	1,233,973	419,551
Cold chain equipment	2,420,664	2,739,061	2,097,159	1,766,096	1,733,407
Vehicles (100% immunization)	1,061,820	124,848	54,122	1,136,554	56,308
Other Capital (Shared vehicles, EPI store, office equipment, waste management, etc.)	1,061,820	1,507,384	1,443,482	1,364,514	1,497,713
RI Costs (Sub-Total)	44,753,066	44,410,545	48,611,502	48,443,993	42,676,054
SIA COSTS	20,186,400	5,814,549	0	240,023	6,423,994
SHARED HEALTH SYSTEM COSTS	14,830,254	15,371,611	9,558,614	12,083,352	10,567,388
GRAND TOTAL	**79,769,720**	**65,596,704**	**58,170,116**	**60,767,368**	**59,667,436**

Estimated total resource requirements fluctuate from year to year because SIAs differ from year to year, as shown in Figure 7. That is, polio vaccine SIAs are projected to take place during 2017 and 2018 and possibly in 2021, TT/Td SIAs in 2017 and 2020, JE campaign in 2017, and MR SIAs in 2018 and 2021.

Figure 7. Projected Resource requirements by Year by Immunization Components



4.2.1 ROUTINE IMMUNIZATION COSTS

The routine immunization costs are further divided into six categories: Vaccines and Injection Supplies, Personnel, Transportation, Vehicles, Cold chain equipment, and Other Capital equipment.

1. Vaccines and Injection Supplies

The Myanmar immunization program plans to increase its vaccine coverage to at least 90% during 2017-2021.

The government also plans to introduce two new vaccines: rotavirus in 2018, Japanese encephalitis vaccine (scaling up) in 2018. By 2017, two additional vaccines will have been introduced in the year before the plans starts (2016) – inactivated polio and pneumococcal vaccines. All these vaccines will be financed through GAVI. The government will also replace tetanus toxoid with tetanus-diphtheria (Td) vaccines in 2017. The introduction of new vaccines will have financial implications not only for the resource requirement for procurement of vaccines and injection supplies but also for cold chain equipment, overhead costs and training of personnel.

In order to achieve the immunization coverage targets, the additional resource requirement for procuring routine vaccines and injection supplies will increase by 2 times in 2021 from 2015. In comparison to the expenditure on vaccines and injection supplies of USD 12.7 million in 2015, the resource requirement will increase to USD $27.5 million by the year 2021.

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[2] The financial projections for vaccines and injection supplies are based on the number of doses required per antigen including wastage rates and the price list provided by National EPI office and UNICEF.

2. Personnel

The personnel resource requirements are for staff at the central, R/S and township levels that spend 100% on immunization program as well as other staff that share their time with other services. The plan projects that additional cold chain technicians will be introduced at the central and regional/state levels.

3. Transportation

Since gaps in funding for transport for distribution of vaccines as well as outreach were identified, additional funding for transportation is projected – totaling approximately $635,000 in 2017 to $742,000 in 2021. Other funding is required for fuel for transport. The total resource requirements range from $1.9 million in 2017 to $3.1 million in 2021.

4. Maintenance and Overhead

Funding for maintenance and overhead include cold chain maintenance and overhead, maintenance of other capital equipment, and building overheads such as electricity and water. The resource requirements range from $1.5 million in 2017 to $2.6 million in 2021.

5. Short-term training

Short-term training will be required for the introduction of new vaccines, for SIAs, and for cold chain maintenance. The resource requirements for short-term training range from $2.3 million to $2.8 million.

6. IEC/Social Mobilization

The government together with UNICEF and WHO have developed a communications strategy for the immunization program. The activities are shown under the objective on improving demand for immunization on page 19. For example, one activity is to develop IEC materials on community ownership of immunization program activities.

7. Disease Surveillance

Resources are needed both to improve disease surveillance and expand it as new vaccines are being added to the program. For polio, for example, the AFP detection rate is lower than the expected one and will need to be improved through training. The projected resource requirements for disease surveillance range from $1.4 million to $1.6 million.

8. Program management

Program management activities include EPI coverage surveys, a national EPI programme review, national and state/regional EPI annual evaluations and logistic planning workshops, EVM assessment, cold chain gap analysis, and national consultation meeting and assessment on safe injection and waste disposal. Resource requirements for these activities fluctuate from year to year depending on the activities and range from $0.8 million in 2018 to $1.3 million in 2017.

9. Cold chain equipment

The program plans to improve the cold chain through equipping 120 prioritized townships with solar refrigerators and other cold chain sub-depots as well as expand the cold chain to more Rural Health Centers and sub-centers which will increase the number of immunization sessions

at service delivery points. Other improvements include addition of a central store and sub-depots, replacement of non-functional cold chain equipment, and establishment of an electronic logistics management information systems. The resource requirements fluctuate from year to year and range from $1.7 million in 2021 to $2.7 million in 2018.

10. Other capital equipment/infrastructure

It is estimated that the immunization system requires additional office equipment (laptops, computers, photocopiers, furniture etc.) and waste management equipment. The total resource requirements for these equipment is $7.4 million.

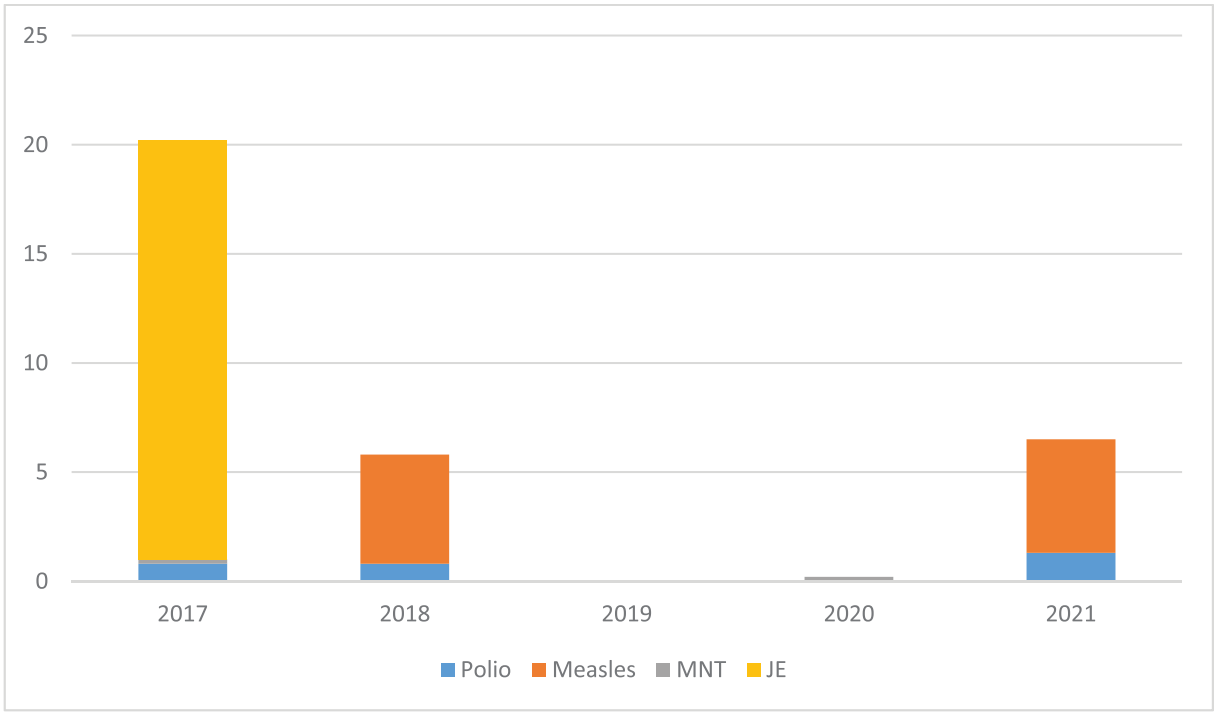
4.2.2. SUPPLEMENTARY IMMUNIZATION ACTIVITIES (SIAs)

The Myanmar government plans to conduct four types of immunization campaigns (SIAs) from 2017-2021. These include:

1. SIAs (4 rounds each) under Polio Eradication Initiative in 2017, 2018, and 2021 as required, with expected coverage of 97%;
2. Measles campaign for children (9-59 months) in 2018 and 2021 with expected coverage of 95%
3. Maternal and Neonatal Tetanus (MNT) campaign for women of child bearing age (15-45 years) – using Td in 2017 and 2020 – with expected coverage of 95%.
4. Japanese Encephalitis campaign in 2017 for children under 15 years.

Figure 8 shows the resource requirements by year for supplemental immunization activities.

Figure 8: Year-wise resource requirements for Supplemental Immunization Activities



4.2.3. SHARED HEALTH SYSTEM COSTS

The contribution of Shared Health System costs is estimated at USD $62.4 million, 19% of the total resource requirement. This contribution is required on account of shared personnel costs, transportation costs, and buildings for the immunization system.

The next section presents an analysis on future financing and funding gaps of the immunization program.

4.3 Future Financing and Funding Gaps of the Immunization Program

Table 14 shows the financing commitments for CEPI by whether these are secure or probable. The total financing of the immunization program is estimated at USD $214.8 million if only secured financing is considered and USD $280.7 million with secure and probable financing.

Table 14: Total Funding by Secure and Probable Types and Year, 2017-2021 (US millions)

Secure	2017	2018	2019	2020	2021
Government	$16.4	$17.0	$11.3	$13.9	$12.5
Gov. co-financing of GAVI vaccines	$1.7	$2.1	$2.6	$2.9	$3.0
GAVI	$23.9	$24.6	$29.1	$26.8	$22.5
UNICEF	$1.4	$0.5	$0.5	$0.5	$0.5
WHO	$0	$0	$0	$0	$0
WHO/CDC	$0	$0	$0	$0	$0
WHO/GAVI	$0	$0	$0	$0	$0
UNICEF/GAVI	$0	$0	$0	$0	$0
UNICEF/3MDG	$1.0	$0	$0	$0	$0
PATH	$0	$0	$0	$0	$0
Total Secure Funding	**$44.5**	**$44.2**	**$43.5**	**$44.1**	**$38.6**
Secure and Probable					
Government	$19.8	$20.4	$14.7	$17.5	$16.2
Gov. co-financing of GAVI vaccines	$1.7	$2.1	$2.6	$2.9	$3.0
GAVI	$36.5	$24.6	$29.1	$26.8	$22.5
UNICEF	$5.8	$0.5	$1.4	$1.5	$1.6
WHO	$1.0	$0.0	$0	$0.2	
WHO/GAVI	$0	$1.8	$0	$0	$0
UNICEF/GAVI	$0.6	$7.0	$6.8	$1.4	$1.2
UNICEF/3MDG	$1.0	$0	$0	$0	$0
WHO/CDC	$2.7	$0.8	$1.6	$2.8	0
PATH	**$0**	**$0.5**	**$0**	**$0**	**$0**
Total Secure and Probable Funding	**$79.3**	**$57.7**	**$56.2**	**$53.0**	**$44.6**

The projections on secure and probable funding present the following:

- The government and GAVI (NVS) are the main sources of secure financing for immunization program in the next five years, contributing 17% and 83% of the total secured funding respectively. Secure financing through unspent funds under GAVI-ISS is available till December 2015 only as are the funds for EPI-component under GAVI-HSS.
- Government funding will go towards financing of traditional vaccines, injection supplies, personnel salaries, transportation, and maintenance and overhead. In addition, it will pay for the costs of constructing new Rural Health Centers and sub-centers.
- GAVI-NVS support will be used for procurement of underused and new vaccines and introduction of new vaccines. Secure and probable funding through GAVI is projected to be $138 million during 2017-2021.
- UNICEF is projected to implement financing for IEC/social mobilization, cold chain maintenance, trainings, and cold chain equipment with funding from GAVI, 3MDG, and UNICEF core funding. This will also include construction and rehabilitation of vaccine stores at state/regions and Township level.
- The World Health Organization and UNICEF is projected to finance SIAs. The US Red Cross also provides some support for SIAs.

Surveillance is financed by CDC, UN Foundation and Rotary funds for surveillance and program management. Considering only the secure funds, approximately two-thirds of the resource requirements, USD 214.8 million (66%) is available for the period of 5 years. If probable funding is also considered, a larger proportion of the resource requirements will be covered (86%) and the funding gap will decline to 14% or USD $43 million.

Figure 9. Total Immunization Program Funding Gap for 2017-2021 (USD $millions)

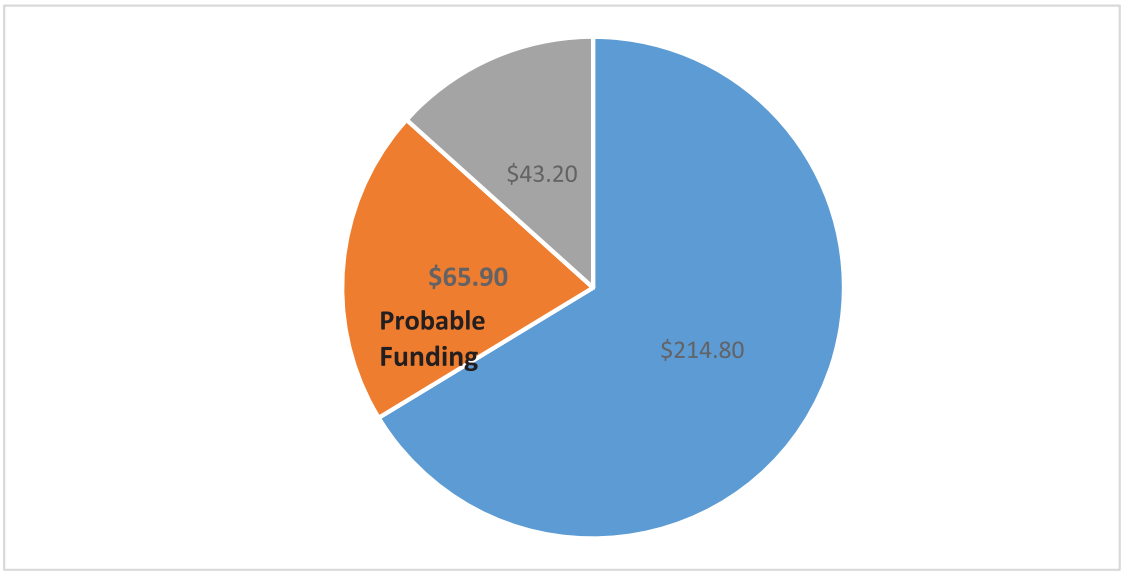
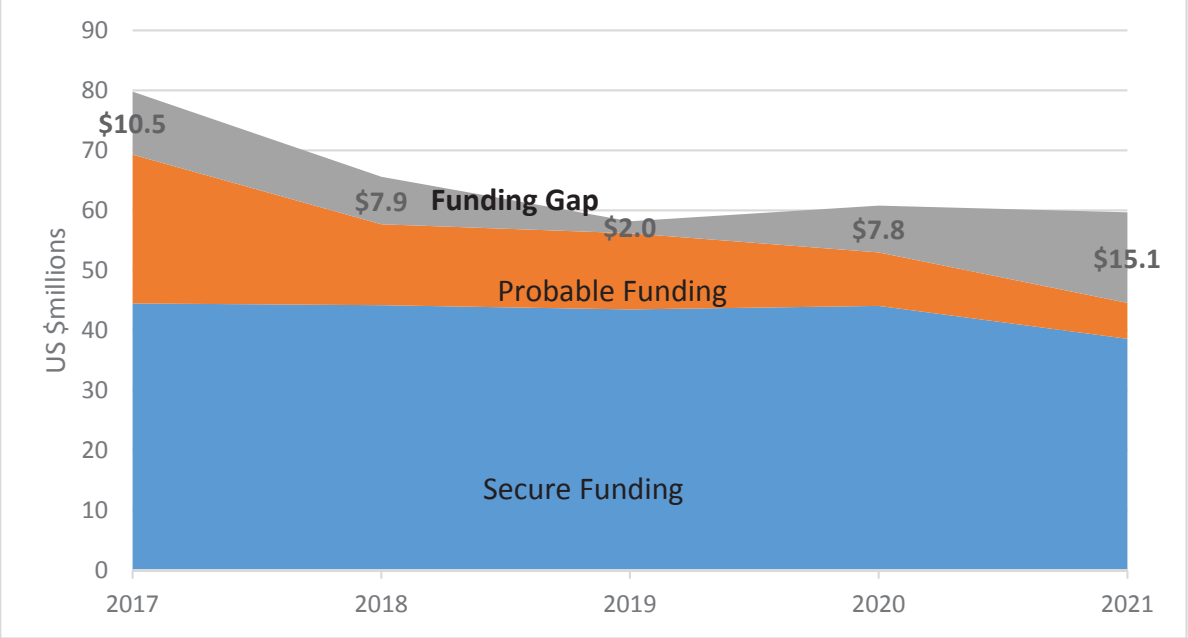


Figure 10 shows the funding gap by year.

Figure 10. Funding Gap for Immunization Program by Year



Funding Gap

Table 15 presents the composition of the funding gap. The table reveals that, with secure funding, most of the gap is for programme activities (e.g. IEC/social mobilization) and other recurrent costs, followed by vaccines and injection supplies, SIAs, and logistics. With secure and probable funding, the gap is for SIAs, followed by activities and other recurrent costs, logistics, and personnel per diems for outreach.

Table 15: Funding gap (without shared costs) composition by type of financing (2017-2021), USD $millions

Composition of Funding Gap	Gap (secured)	Gap (secured + probable)
	USD	USD
Vaccines & Injection Supplies	11.1	0
Personnel (Per diems for Outreach)	5.8	5.8
Transport	4.4	0
Activities & Other Recurrent Costs	40.2	10.1
Logistics (Vehicles, Cold Chain & Other Equipment)	17.0	9.7
SIAs (Campaigns)	32.7	18.1
Total Funding Gap	**$111.3 million**	**$43.8 million**

1. Vaccines and Injection Supplies

The immunization program has been dependent upon UNICEF for traditional vaccines and injection supplies, GAVI-NVS for underused and new vaccines, government (co-financing share for the GAVI-supported vaccines). Myanmar is now classified as a lower middle income country and will be considered as a preparatory transition country. As a result, its co-financing payment will be higher and it will increase at a rate of 15% annually. Currently, the GAVI co-financing is $0.20 per dose for vaccines that require co-financing (e.g. pentavalent).

The CEPI plans to begin financing traditional vaccines in 2016 if it gets approval from the government. GAVI will finance several new and underutilized vaccines – pentavalent, pneumococcal, IPV and MR SIAs and the government will pay co-financing fees for pentavalent and pneumococcal vaccines . The government will also be applying for financing for two other new vaccines – rotavirus and Japanese Encephalitis – and the financing is shown as probable for these vaccines.

2. Personnel

The government will pay for health personnel salaries as well as operational costs for supervision and monitoring. The government is not currently paying operational costs of outreach activities. Some funding for operational costs for outreach is provided by a World Bank project as well as the 3MDG project in some townships. The remaining operational costs for outreach are unfunded.

3. Transport

The government pays for transport for distribution of vaccines as well as outreach but there are some gaps in funding for these activities. Some funding is currently coming for transport and operational costs of outreach through the 3MDG Project and the World Bank. It is likely that the government will begin to fund these activities and the risk level for this funding is shown as probable.

4. Activities and other recurrent costs

WHO is receiving funding for implementing activities such as surveillance and program management (coverage surveys, National programme review, annual EPI review, cold chain gap analysis) the funding is shown as probable. Other activities such as training and IEC/social mobilization do not currently have funding and these are shown as unfunded. Maintenance of cold chain and other capital equipment is assumed to be financed through UNICEF and other external partners.

5. Logistics (vehicles, cold chain and other equipment)

The 3MDG Project has financed an expansion of the cold chain that is being channeled through UNICEF. This funding will continue until 2017. The plan is to have the cold chain from 2017 supported by GAVI through GAVI HSS and cold chain optimization platform. Additionally UNICEF will continue mobilizing resources to support cold chain (using own funds and other resources mobilized from donors).

Other logistics such as vehicles and other equipment to be purchased as well as cold chain after 2017 will funded from HSS 2. are currently unfunded.

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[3] GAVI does not require co-financing for IPV and measles-rubella vaccines.

6. Supplementary Immunization Activities (SIAs) /Campaigns

The country is aligning with the global polio eradication efforts and is committed to implement the polio end-game strategic plan, based on the global polio situation and if there will be a need to implement polio SIA. The funding is considered probable since it is likely to get funding from the Global Polio Eradication Initiative channeled through both UNICEF and WHO country office. SIAs for MNT are likely to get funding from WHO and UNICEF (UNICEF has been playing a major role in MNT SIAs as well as MR SIAs). The funding for Japanese Encephalitis immunization campaign will be mobilized from GAVI. Other SIAs such as the measles-rubella campaign planned in 2018 are shown as unfunded but efforts will be made to mobilise funds from the global measles and rubella initiative with the likelihood of having these funds channeled through UNICEF and WHO. Additionally, UNICEF and WHO will mobilize resource from other donors such as United Nations Foundation.

4.5 Financial Sustainability

Increasing financial sustainability of the immunization program will insure that the country can reach its objectives over time of decrease morbidity and mortality from vaccine-preventable diseases. This is important also since Myanmar will become a preparatory transition country next year.

The immunization system is highly dependent upon external funding in Myanmar. Up until now, the government has not been funding any vaccines in its programme and has relied on UNICEF (traditional vaccines) and GAVI (new and underused vaccines) to finance its vaccines. CEPI has took an important step towards sustainability in 2015 and requested the Ministry of Health to start paying for traditional vaccines of 2016.

There are several strategies that the CEPI can utilize to try to increase the financial sustainability of its programme. These include the following:

1. Increase funding from the government and external partners through conducting advocacy meetings at all levels (Activity 2.3.3);
2. Increase spending on the immunization program through building community ownership through community participation and local resource mobilization in immunization service delivery;
3. Improve efficiency of the immunization program through contracting a third party for vaccine transportation in urban settings (Activity 1.2.3), establishing a well-functioning EPI store for both vaccines and dry goods (Activity 3.2.1); implementing the effective vaccine management improvement plan (Strategy 3.4);
4. Conduct cost-effectiveness studies of new vaccines and VPDS (Activity 5.2.2)
5. Develop financial sustainability plan including creation of "immunization trust fund" (Strategy 6.2)

CEPI can improve funding for its program through advocating for the government and external partners to increase their support for the program. Currently, the government's expenditure on health and the immunization program is low compared to other countries. To improve the financial sustainability of the programme, CEPI should advocate for the government to increase its spending on the immunization programme.

CEPI can also advocate with its external partners to increase their support for the programme. It is an inopportune time to do so since, as the country introduces political and economic reforms, external partners are likely to be willing to improve their support for the programme.

A second strategy to improve spending on the programme is through building community ownership by asking communities to participate in the program. If the communities feel ownership for the program, they will be more likely to mobilize resources for immunization service delivery – e.g. provide transport or per diems for health workers. Community support could also encourage midwives to conduct outreach to villages more frequently.

CEPI could also improve its financial sustainability through lowering costs of the program. That is, it could improve efficiency of the immunization program. Some potential ways that it could do so are the following: 1. Contracting with a third party for vaccine transportation in urban settings and/or rural areas could lower costs by providing consistency in costs of transport; 2) Establish a well-functioning EPI store for both vaccines and dry goods (Activity 3.2.1) to reduce wastage; and 3) implement the effective vaccine management improvement plan (Strategy 3.4) so that wastage can be reduced.

CEPI can also conduct cost-effectiveness studies on its new vaccines, service delivery strategies to assist with its decision-making on new vaccines and introduction strategies. As part of this analysis, the burden of disease will be analyzed and the cost savings from introducing a vaccine will be analyzed.

CEPI should also develop a detailed financial sustainability plan. As part of that plan, it should conduct an assessment of having an 'immunization trust fund' and whether this mechanism is applicable to the Myanmar context.

5. References

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6. Annexes

Table A. GVAP Checklist

GVAP strategies	Key activities	Activity included in cMYP			
Strategic Objective 1: All countries commit to immunization as a priority.		**Yes**	**No**	**Not Applicable**	**New activity needed**
Establish and sustain commitment to immunization	• Ensure legislation or legal framework in all countries, including provisions for a budget line for immunization, and for monitoring and reporting.		x		
	• Develop comprehensive national immunization plans that are part of overall national health plans through a bottom-up process including all stakeholders..	x			
	• Set ambitious but attainable country-specific targets within the context of morbidity and mortality reduction goals.	x			
	• Scrutinize, defend, and more closely follow immunization budgets, disbursements and immunization programme activities.		x		
	• Support local civil society organizations and professional associations to contribute to national discussions on immunizations and health.	x			

Inform and engage opinion leaders on the value of	• Explore models to promote collaboration between the stakeholders that generate evidence on immunization and those who use it, to set priorities and formulate policies.			x	
	• Develop and disseminate the evidence base on the public-health value of vaccines and immunization and the added value of achieving equity in access and use of immunization.	x			
	• Develop and disseminate the evidence base for the broad economic benefits of immunization for individuals, households, communities and countries.	x			
	• Include immunization in the agendas of governing body meetings at all levels and in other social, health and economic forums.	x			
Strengthen national capacity to formulate evidence-based policies	• Create or strengthen independent bodies that formulate national immunization policies (for example, NITAGs or regional technical advisory groups).			x	
	• Develop more effective ways for National Regulatory Agencies (NRAs), Health Sector Coordination Committees (HSCCs), and Interagency Coordination Committees (ICCs) to support immunization programmes as part of disease-control programmes and preventive health care.			x	
	• Create regional forums and peer-to-peer exchange of information, best practices and tools.	x			
	• Create expanded and more transparent mechanisms for aggregating, sharing and using information to monitor commitments.		x		

x

GVAP strategies	Key activities	Activity included in cMYP			
Strategic Objective 2: Individuals and communities understand the value of vaccines and demand immunization as both their right and responsibility.		**Yes**	**No**	**Not Applicable**	**New activity needed**
Engage individuals and communities on the benefits of immunization and hear their concerns	• Engage in a dialogue which both transmits information and responds to people's concerns and fears.	x			
	• Utilize social media tools and lessons from commercial and social marketing efforts.	x			
	• Leverage new mobile and internet-based technologies.	x			
	• Include immunization in the basic education curriculum.		x		
	• Conduct communications research.	x			
Create incentives to stimulate demand	• Create incentives to households and health workers for immunization, where appropriate, and while respecting the autonomy of beneficiaries (for example, cash or in-kind transfers, bundling of services, media recognition).	x			
	• Conduct social research to improve the delivery of immunization services and the ability to meet the needs of diverse communities.	x			

Build advocacy capacity	• Recruit new voices, including those of educators, religious leaders, traditional and social media personalities, family physicians, community health workers and trained immunization champions (among others).	x			
	• Train health-care workers on effective communication techniques, especially to address vaccine hesitancy and to respond to reports of serious AEFIs in order to maintain trust and allay fears.	x			
	• Engage, enable and support in-country CSOs to advocate to local communities and policy-makers and in local and global media regarding the value of vaccines.	x			
	• Create national or regional advocacy plans that involve in-country CSOs.	x			
	• Link global, national and community advocacy efforts with professional and academic networks.		x		

GVAP strategies	Key activities	Activity included in cMYP			
Strategic objective 3: The benefits of immunization are		**Yes**	**No**	**Not Applicable**	**New activity needed**
Develop and implement new strategies to address inequities	• Recast "Reaching Every District" to "Reaching Every Community" to address inequalities within districts.	x			
	• Engage underserved and marginalized groups to develop locally tailored, targeted strategies for reducing inequalities.	x			
	• Introduce appropriate new vaccines in national immunization programmes (see also Objective 5).	x			
	• Establish a life course approach to immunization planning and implementation, including new strategies to ensure equity across the lifespan.		x		
	• Prevent and respond to vaccine-preventable diseases during disease outbreaks, humanitarian crises and in conflict zones.	x			
Build knowledge base and capacity to enable equitable delivery	• Track each individual's immunization status, leveraging immunization registries, electronic databases and national identification number systems.		x		
	• Take advantage of community structures to enhance communication and deliver services (for example, traditional birth attendants, birth registries).	x			

	• Involve CSOs in community outreach and planning.	x			
	• Develop new approaches to community engagement for urban and peri-urban areas.	x			
	• Train health workers and CSOs on how to engage communities, identify influential people who can assist in planning, organizing and monitoring health and immunization programmes, identify community needs and work with communities to meet those needs.	x			
	• Conduct operational and social science research to identify successful strategies to reduce inequalities and improve the quality and delivery of immunization services.	x			

GVAP strategies	Key activities	Activity included in cMYP			
Strategic Objective 4: Strong immunization systems that are an integral part of a well-functioning health system.		**Yes**	**No**	**Not Applicable**	**New activity needed**
Develop and implement new strategies to address inequities	• Ensure that global vaccine programmes focusing on eradication and elimination goals are incorporated into national immunization programmes.	x			
	• Ensure that new vaccine deployment is accompanied by comprehensive disease-control plans.	x			
	• Ensure coordination between the public and private sectors for new vaccine introduction, reporting of vaccine-preventable diseases and administration of vaccines, and ensure quality of vaccination in the public and private	x			
	• Consider the inclusion of vaccines in health programmes across the life course.		x		

Strengthen monitoring and surveillance systems	• Improve the quality of all immunization administrative data and promote its analysis and use at all administrative levels to improve programme	x			
	• Develop and promote the use of new technologies for collection, transmission and analysis of immunization data.	x			
	• Further strengthen, improve quality and expand disease surveillance systems to generate information based on laboratory- confirmed cases for decision-making, monitoring the impact of immunization on morbidity and mortality and changes in disease	x			
	• Ensure capacity for vaccine safety activities, including capacity to collect and interpret safety data, with enhanced capacity in countries that introduce newly-developed vaccines.	x			
Strengthen capacity of managers and frontline workers	• Ensure that immunization and other primary health-care programmes have adequate human resources to schedule and deliver predictable services of acceptable quality.	x			
	• Increase levels of pre-service, in-service and post-service training for human resources, and develop new, relevant curricula that approach immunization as a component of comprehensive disease		x		
	• Promote coordinated training and supervision of community-based health workers.		x		

Strengthen infrastructure and logistics	• Innovate to improve cold-chain capacity and logistics, as well as waste management.	x			
	• Minimize the environmental impact of energy, materials and processes used in immunization supply systems, both within countries and globally.	x			
	• Staff supply systems with adequate numbers of competent, motivated and empowered personnel at all levels.	x			
	• Establish information systems that help staff accurately track the available supply.	x			

GVAP strategies	Key activities	Activity included in cMYP			
Strategic Objective 5: Immunization programmes have sustainable access to predictable funding, quality supply and innovative technologies.		**Yes**	**No**	**Not Applicable**	**New activity needed**
Increase total amount of funding	• Establish a commitment for governments to invest in immunization according to their ability to pay and the expected benefits.	x			
	• Engage new potential domestic and development partners and diversify sources of funding.	x			
	• Develop the next generation of innovative financing mechanisms.	x			
Increase affordability for middle-income countries	• Explore differential pricing approaches to define explicit criteria for price tiers and the current and future prices to be made available to lower middle-income and middle-income countries.		x		
	• Explore pooled negotiation or procurement mechanisms for lower middle-income and middle- income countries.		x		

Improve allocation of funding in low- and middle-income countries	• Strengthen budgeting and financial management in-country to better integrate financial and health-care planning and priority setting.	x			
	• Coordinate funding support from development partners and other external sources.	x			
	• Evaluate and improve funding support mechanisms on the basis of their effectiveness in reaching disease goals.		x		
	• Base funding on transparency and objectivity, in order to ensure the sustainability of programmes.		x		
	• Promote the use of cost and cost-benefit arguments in fundraising, decision-making and defense of immunization funding.	x			
	• Explore pay-for-performance funding systems.	x			
Secure quality supply	• Build and support networks of regulators and suppliers to share best practices and to improve quality assurance capabilities and quality control.		x		
	• Develop tools to strengthen global standardization of manufacturing and regulatory processes.		x		
	• Strengthen national regulatory systems and develop globally harmonized regulations.		x		
	• Ensure a forum where countries can communicate expected demand for vaccines and technologies and provide guidance to manufacturers on desired product profiles.		x		

GVAP strategies	Key activities	Activity included in cMYP			
Strategic Objective 6: Country, regional and global R&D		**Yes**	**No**	**Not Applicable**	**New activity needed**
Expand capabilities and increase engagement with end-users	• Engage with end users to prioritize vaccines and innovations according to perceived demand and added value.				
	• Establish platforms for exchange of information on immunization research and consensus building.				
	• Build more capacity and human resources in low- and middle-income countries to conduct R&D and operational research.				
	• Increase networking among research centres for efficient building of partnerships among high-, middle- and low-income countries' institutions.				
	• Promote collaboration between traditional research disciplines and scientists from disciplines not previously engaged in vaccine research.				
Enable the development of new vaccines	• Research on the fundamentals of innate and adaptive immune responses, particularly in humans.				
	• Research on immunologic and molecular characteristics of microbes.				
	• Improve understanding of the extent and causes of variation in pathogen and human population responses to vaccines.*				

Accelerate development, licensing and uptake of vaccines	• Promote greater access to technology, know- how and intellectual property for adjuvants and their formulation into				
	• Develop non-syringe delivery mechanisms and vaccine packaging that best suits 'the needs and constraints of countries'				
	• Develop thermo-stable rotavirus and measles vaccines.				
	• Develop new bioprocessing and manufacturing				
	• Develop a global, regulatory science research agenda.				
	• Adopt best practices in portfolio and partnership management for				
Improve programme efficiencies and increase coverage and impact	• Research the use of more effective information through modern communication technologies.				
	• Conduct representative epidemiological, immunological, social and operational studies and investigations of vaccine impact to guide health economics analysis.				
	• Perform operational research on improved delivery approaches for life course immunization, and vaccination in humanitarian emergencies, fragile states,				
	• Perform research on interference effects and optimum delivery schedules.				
	• Perform research to develop improved diagnostic tools for conducting surveillance in low-income countries.				

This important document presents an overview of the costed comprehensive Multi-Year Plan (cMYP) for the expanded programme on immunization in the Republic of the Union of Myanmar covering the period of 2017-2021. This five year plan is a follow up plan to the previous cMYP for the period 2011-2016.

Impotent features of new cMYP are the universal coverage of immunization reaching all areas and population including peri urban, slum, migratory population, geographically and socially hard to reach and conflict area, by strengthening immunization program management, human resources, financing and service delivery and community demand creation and ownership towards immunization through community participation and communication.
Immunization supply chain is to be strengthened by vaccine management and stronger cold chain systems at all levels. Global and regional goals of eradication, elimination and control of VPDs are set to maintain zero polio cases, both WPV and VDPV, to maintain MNT elimination status, to achieve elimination of measles and control of rubella and CRS by 2020, to strengthen and maintain strong surveillance system for AEFI and other priority VPDs. Japanese encephalitis vaccine is to be introduced into routine immunization schedule following catch up campaign.

New cMYP consists of six objectives and 35 strategies which will be achieved by activities for each strategy.

cMYP will form the basis for development of annual plans for EPI and VPD surveillance programme of Department of Public Health in collaboration with WHO, UNICEF and Gavi Alliance

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