Expanded Programme on Immunization
Myanmar Multi Year Plan
2012-2016

Central Expanded Programme on Immunization
Department of Health, Ministry of Health
The Republic of the Union of Myanmar
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<th>Description</th>
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<tr>
<td>AD</td>
<td>Auto-disable</td>
</tr>
<tr>
<td>AEFI</td>
<td>Adverse events following immunization</td>
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<tr>
<td>AFP</td>
<td>Acute flaccid paralysis</td>
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<tr>
<td>AMW</td>
<td>Auxiliary midwife</td>
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<tr>
<td>ARI</td>
<td>Acute respiratory infection</td>
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<tr>
<td>BCG</td>
<td>Bacillus Calmette-Guerin</td>
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<td>BHS</td>
<td>Basic Health Staff</td>
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<tr>
<td>CDK</td>
<td>Clean delivery kit</td>
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<tr>
<td>CEPI</td>
<td>Central Expanded Programme on Immunization</td>
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<tr>
<td>CEU</td>
<td>Central Epidemiology Unit</td>
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<tr>
<td>CMSD</td>
<td>Central Medical Stores Depot</td>
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<tr>
<td>cMYP</td>
<td>costed Comprehensive Multi Year Plan</td>
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<tr>
<td>CSPMC</td>
<td>Comprehensive Strategies Package for Measles Control</td>
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<tr>
<td>DF</td>
<td>Deep freezer</td>
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<tr>
<td>DMR</td>
<td>Department of Medical Research</td>
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<td>DoH</td>
<td>Department of Health</td>
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<tr>
<td>DPT</td>
<td>Diphtheria-Pertussis-Tetanus</td>
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<tr>
<td>EPI</td>
<td>Expanded Programme on Immunization</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GIVS</td>
<td>Global Immunization Vision and Strategy</td>
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<tr>
<td>HepB</td>
<td>Hepatitis B</td>
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<tr>
<td>Abbreviation</td>
<td>Description</td>
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<tr>
<td>Hib</td>
<td>Haemophilus influenzae b</td>
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<td>HMI S</td>
<td>Health management information system</td>
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<td>HSS</td>
<td>Health System Strengthening</td>
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<td>IEC</td>
<td>Information, education and communication</td>
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<td>ILR</td>
<td>Ice-lined refrigerator</td>
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<tr>
<td>ISS</td>
<td>Immunization Services support</td>
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<tr>
<td>ITD</td>
<td>Intratypic differentiation test</td>
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<tr>
<td>JCV</td>
<td>Japan Committee “Vaccines for the “World's Children”</td>
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<tr>
<td>JE</td>
<td>Japanese encephalitis</td>
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<tr>
<td>JICA</td>
<td>Japan International Cooperation Agency</td>
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<tr>
<td>LHV</td>
<td>Lady Health visitor</td>
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<td>MCH</td>
<td>Maternal and child health</td>
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<tr>
<td>MCV1</td>
<td>Measles-containing vaccine – first dose</td>
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<td>MDG</td>
<td>Millennium Development Goal</td>
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<td>MICS</td>
<td>Multiple indicator cluster survey</td>
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<td>MNTE</td>
<td>Maternal and neonatal tetanus elimination</td>
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<tr>
<td>MoH</td>
<td>Ministry of Health</td>
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<tr>
<td>Natcom</td>
<td>UNICEF National Committees for Fund Mobilization</td>
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<tr>
<td>NCI P</td>
<td>National committee on Immunization Practices</td>
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<tr>
<td>NGO</td>
<td>Nongovernmental organization</td>
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<td>NHP</td>
<td>National Health Plan</td>
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<td>NID</td>
<td>National Immunization Day</td>
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<tr>
<td>Acronym</td>
<td>Term</td>
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<tr>
<td>NRA</td>
<td>National Regulatory Authority</td>
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<tr>
<td>NT</td>
<td>Neonatal tetanus</td>
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<td>OPV</td>
<td>Oral polio vaccine</td>
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<tr>
<td>PHC</td>
<td>Primary health care</td>
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<tr>
<td>PHS</td>
<td>Public health supervisor</td>
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<tr>
<td>REC</td>
<td>Reaching Every Community</td>
</tr>
<tr>
<td>RED</td>
<td>Reaching Every District</td>
</tr>
<tr>
<td>RHC</td>
<td>Rural Health Centre</td>
</tr>
<tr>
<td>S/R</td>
<td>State/Region</td>
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<tr>
<td>SDCU</td>
<td>Special Diseases Control Unit</td>
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<td>SIA</td>
<td>Supplementary Immunization Activity</td>
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<tr>
<td>SNID</td>
<td>Sub-National Immunization Day</td>
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<tr>
<td>SOP</td>
<td>Standard operating procedures</td>
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<tr>
<td>TB</td>
<td>Tuberculosis</td>
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<tr>
<td>Td</td>
<td>Tetanus and diphtheria</td>
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<tr>
<td>THE</td>
<td>Total health expenditure</td>
</tr>
<tr>
<td>TMO</td>
<td>Township medical officer</td>
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<tr>
<td>TT</td>
<td>Tetanus toxoid</td>
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<tr>
<td>UK</td>
<td>United Kingdom</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<tr>
<td>USD</td>
<td>United States Dollar</td>
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<tr>
<td>Abbreviation</td>
<td>Description</td>
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<tr>
<td>VDPV</td>
<td>Vaccine-derived polio virus</td>
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<tr>
<td>VPD</td>
<td>Vaccine-preventable disease</td>
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<tr>
<td>VVM</td>
<td>Vaccine vial monitor</td>
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<tr>
<td>WCHD</td>
<td>Women and Child Health Department</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<tr>
<td><strong>WHO-SEARO WHO</strong></td>
<td>Regional Office for South-East Asia</td>
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<tr>
<td>WPV</td>
<td>Wild polio virus</td>
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Executive summary

This important document presents an overview of the comprehensive Multi Year Plan (cMYP) for the Expanded Programme on Immunization (EPI) in the Republic of the Union of Myanmar, covering the period 2012-2016. This five-year plan is a follow-up plan to the previous cMYP for the period 2007-2011. It is in line with Myanmar’s current National Health Plan or NHP (2012-2016) which covers the third five-year period of Myanmar Health Vision 2030 (2001-2030).

Preparation of this cMYP was based on a desk review of immunization programme review reports, annual evaluation reports, assessment reports of cold chain, integrated acute flaccid paralysis (AFP) surveillance, joint World Health Organization (WHO)/United Nations Children’s Fund (UNICEF) EPI reporting forms, GAVI annual progress reports, Health in Myanmar 2010 (Ministry of Health), the previous cMYP, Financial Sustainability Plan (2005), Myanmar Health Statistics 2010 and Statistical Year Book 2009, International Review of EPI in Myanmar 2008, and 2011 Effective Vaccine Management assessment findings.
The cMYP 2012–2016 has been jointly prepared by officials from Central EPI, Public Health Division, Planning Division and Finance Section of the Department of Health, Department of Health Planning, and UNICEF and WHO using health system analysis: identifying problems, underlying causes and solutions; prioritizing objectives and milestones; and formulating the strategies and key activities for achieving goals stipulated in the NHP.

Important features of the new cMYP are the roll-out and implementation of the Reaching Every Community (REC) strategy in hard-to-reach areas; plans to introduce two new vaccines in 2012 - Haemophilus influenzae b (Hib) vaccine as pentavalent preparation of diphtheria-pertussis-tetanus (DPT)-Hepatitis B (HepB)-Hib and measles second dose; strengthening safe vaccine delivery by a new cold van provided by the Immunization Services Support (ISS) fund through WHO in 2012; introduction of school-based immunization for tetanus and diphtheria (Td) in a phased manner in 2014; strengthening of polio eradication strategies and Measles elimination goals by strengthening both first and second dose of measles vaccination; and activities for effective vaccine management and cold-chain improvement based on the findings of an EVM assessment conducted in July-August 2011. The second dose of measles vaccination will be systematically introduced in 2012 by seeking external financing through GAVI support. Strengthening of supportive supervision will take place by providing mobility (vehicles) to national, regional and state-level supervision teams. Two-wheelers will also be provided to health workers/supervisors in 50 select townships, specifically those located in hard-to-reach area. Also planned are a number of research activities to estimate disease burden and monitor the impact of ongoing immunization programmes. All of these strategies will contribute to the achievement of Millennium Development Goal (MDG) 4. The objectives, milestones and strategies for the next five years were set in the context of the Global Immunization Vision and Strategies (GIVS) strategic framework.

The cMYP consists of five objectives and 15 strategies which will be achieved by key activities and subactivities for each respective strategy. These activities
cover all major immunization system components: service delivery, vaccine supply, quality and logistics; advocacy and communication; surveillance and monitoring; and programme management. Activities for effective vaccine management and cold-chain improvement proposed by the EVM assessment of July-August 2011 are also included.

CMYP Costing Tool Vs.2.5 was used for costing this cMYP. The different EPI system components were costed on the basis of the planned activities and inputs required. Unit prices and quantities required each year along with the proportion of time spent by human resources on immunization-related activities were used to derive costing of all inputs and operational costs. Current spending (for 2011) was used as a baseline cost to project future expenditures.

The total budget (including shared costs and financing) cost for the cMYP for 2012–2016 is US $173 879 494. Of this, 52% is for vaccine supply and logistics, 6% for service delivery, 2% for advocacy and communication, 5% for monitoring and disease surveillance, 6% is programme management, 17% for SIAs, and 11% is shared health system cost. Total secured financing from the government, government co-financing for GAVI vaccines, WHO, UNICEF and GAVI for the five-year period is US $85.14 million, and total probable financing is US $33.46 million. The average funding gap (with secured funds only) for the five years 2012–2016 is 51% of the total needs, and the average funding gap (with both secured and probable funds) is 32% of total needs.

This cMYP formulates strategies for programme sustainability by creating and strengthening mechanisms for sustainable financing and vaccine supplies.
Acknowledgements

We would like to express our heartfelt gratitude to Dr Saw Lwin, Acting Director-General, Department of Health, for continuous guidance throughout the whole preparation process of the cMYP. We would also like to thank Dr Phone Myint, Acting Director-General, Department of Health Planning, for invaluable advice, suggestion and technical inputs.

We are also grateful to Dr Nilar Tin, Director, Planning, Department of Health, for providing inspirational suggestions and comments on the health system context and planning strategy. We would like to acknowledge Dr Tin Win Kyaw, Director, Public Health, Department of Health, for his precious suggestions and comments on health system costing and financing tools. We are also indebted to Dr San San Aye, Director of Health Planning, for her technical inputs on macroeconomics, demography and costing. Thanks also go to U Kyaw Htay, Director of Finance, for his advice on costing and financing. We would also like to acknowledge Dr Soe Lwin Nyein, Director of Epidemiology, Department of
Health for his constant guidance and supervision of the cMYP preparation on a day-to-day basis.

We must express our sincere thanks to our colleagues from WHO and UNICEF country, regional and headquarters offices who provided technical inputs. We would like to acknowledge the Interagency Coordinating Committee members who kindly reviewed and commented on the cMYP. We also would like to thank to those who, while not listed here, contributed to the comprehensive preparation of the documents by providing invaluable pieces of information.
Health care and immunization services in Myanmar

1.1. Background and policy context

The Republic of the Union of Myanmar is a developing nation and the largest country in mainland South-East Asia. 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. It has an estimated total population of 61.03 million in 2011. Salient socio-demographic and administrative characteristics are as follows:
The country has a pluralistic mix of public and private systems in the provision of services. Health care is organized and provided by both public and private providers. The Ministry of Health (MoH) is the major provider of comprehensive health care. The Department of Health, one of seven departments under the Ministry of Health, plays a major role in providing comprehensive primary health care (PHC) throughout the country including
remote and hard-to-reach border areas. Some other ministries also provide health care, mainly curative, for their employees and their dependants. They include the ministries of Defence, Railways, Mines, Industry I, Industry II, Energy, Home, Agriculture and Irrigation, and Transport. The Ministry of Industry I and Union of Myanmar Economic Holdings Limited run Pharmaceutical Factories and produce medicines and therapeutic agents to supplement domestic needs.

The private sector mainly provides ambulatory care, and some facilities providing institutional care have developed in Yangon, Mandalay and some other large cities in recent years. They are regulated in conformity with the provisions of the Myanmar Medical Council Law and Private Hospital Law. The General Practitioners and Specialties Section of the Myanmar Medical Association with its branches in townships gives these providers opportunities to update and exchange their knowledge and experiences by holding seminars, talks and symposia on currently emerging issues and recent advances in diagnosis and treatment. The branches also participate in social mobilization activities to propagate the message of EPI through their members. The Medical Association and its branches also provide a link between them and their counterparts in the public sector so that private practitioners can also participate in public health activities, especially social mobilization for programmes of national importance like EPI.

One important feature of Myanmar's health system is the existence of traditional medicine. It is also well accepted and utilized by the population. With encouragement of the state, scientific ways of assessing the efficacy of therapeutic agents, preservation and cultivation of medicinal plants, sustaining and propagation of traditional treatises and practices are being undertaken. There are a total of 14 traditional hospitals run by the state in the country.

In line with the current National Health Policy, NGOs such as Myanmar Maternal and Child Welfare Association, Myanmar Red Cross Society and Myanmar Women Affairs Association also participate in health activities and
social mobilization, and their roles are also becoming important as the need for collaboration in health becomes more prominent. The establishment of the National Health Committee in 1989 helped strengthen sectoral collaboration and community participation in the Myanmar health system. Recognizing the growing need to involve all relevant sectors at all administrative levels and to mobilize the community more effectively in health activities, health committees have been established at various administrative levels down to wards and village tracts. These committees are headed by the chairman or responsible person from the local authorities concerned and include heads of related government departments and representatives from the social organizations as members. Heads of health departments are designated as secretaries of the committees.

The major sources of finance for health-care services are the government, private households, the social security system, community contributions and other donors. The government of Myanmar is committed to improving the health of its people and has been steadily increasing its investments and funding in the health sector over the years. Government expenditure on health inclusive of both capital and current costs has increased from kyat 464.1 million in 1988-1989 to kyat 51,674.9 million in 2008-2009.

Prevention and public health account for about one-fourth of the total expenditure on health. (MoH, Health in Myanmar & Myanmar Health Statistics 2010).

1.2. Structure of Myanmar health system, health system constraints and plans

1.2.1. Structure of Myanmar health system

The MoH is the major organization responsible for raising the health status of the people and accomplishes this through provision of comprehensive health services encompassing promotive, preventive, curative and rehabilitative services.
The NHP 2006–2011 forms an integral part of the National Development Plan and is in tandem with the national economic plan. The current NHP (2012–2016) ensures effective implementation of the National Health Policy. It covers the third five-year period of Myanmar Health Vision 2030.

The NHP has 12 main components, including Community Health Care, Disease Control and others. The EPI is one of the National Health Projects and falls under the Diseases Control Programme. The Central Medical Supply Depot (CMSD), which is responsible for all medical supplies and logistics including EPI logistics, is a component of the Hospital Care Programme.

The MoH is headed by the minister, assisted by two deputy ministers. The ministry has seven functioning departments, each under a Director-General. These are 1) Department of Health Planning, 2) Department of Health, 3) Department of Medical Science, 4) Department of Traditional Medicine, 5) Department of Medical Research (Lower Myanmar), 6) Department of Medical Research (Upper Myanmar) and 7) Department of Medical Research (Central Myanmar).

The Department of Health is responsible for providing health-care services. Under the supervision of the director-general and four deputy directors-general, there are 11 directors who lead and managing the following divisions: Administration; Planning; Public Health; Medical Care; Disease Control; Health Education; Food and Drug Administration; Laboratory; Occupational Health; Nursing; and Epidemiology. Among these divisions, the Public Health Division is responsible for PHC and basic health services, nutrition promotion and research, environmental sanitation, maternal and child health services and school health services. The Medical Care Division is responsible for setting hospital-specific goals and management of hospital services. The division also undertakes procurement, storage and distribution of medicines, medical instruments and equipment for all health institutions. The Epidemiology Division covers prevention and control of infectious diseases, disease surveillance, outbreak investigation and response and capacity building. The EPI section falls under this. The Health Education
Division is responsible for widespread dissemination of health information and education.

There are three Departments of Medical Research (DMR), one each for Lower, Middle and Upper Myanmar. All of these conduct research aimed at examining the epidemiology of vaccine-preventable diseases (VPDs) in Myanmar and operational research on immunization. Some of the ongoing research is on rotavirus and Haemophilus influenzae b (Hib) disease burden, sentinel surveillance for typhoid and effectiveness of oral cholera vaccine.

The Department of Health is responsible for supervising health departments at state/regional levels and townships, including all hospitals and clinics. There are 14 state/regional health departments responsible for state/regional planning, training and technical support, coordinating, supervising and monitoring and evaluation of health services.

Myanmar has a well-developed health infrastructure, which in 2009–2010 it consisted of 884 government hospitals, 86 primary and secondary health centres, 80 school health teams and 348 maternal and child health (MCH) centres taking care of urban populations. There are 1 504 rural health centres catering to the needs of the rural population (Health in Myanmar 2010). In recent years, the government has given priority for development of health facilities in the underserved border areas in order to address the special needs of residents there due to geographic inaccessibility and socioeconomic reasons. Health development and medical care for the border area have been implemented since 1989. As of December 2009, 100 hospitals, 97 dispensaries, 90 rural health centres and 200 subrural health centres have been established, providing effective health-care services to the people in border and remote areas.

At the peripheral level, health services are delivered by the township health departments, each of which serves an average of 100 000-200 000 people and is headed by a township medical officer (TMO). The departments oversee a township hospital which may have 16, 25 or 50 beds depending on the population of the township. There are also one or two station hospitals and
from four to seven rural health centres (RHCs) under its jurisdiction to provide health services to the rural population. The district and regional capitals have 100-200 bedded hospitals. Urban health centres and MCH centres take care of the urban population. School health teams cover all schools in rural and urban areas. Each RHC has four or five subcentres on average, covered by a midwife and public health supervisor-II (PHS-II) at the village level. In addition there are voluntary health workers (community health workers and auxiliary midwives or AMWs) in outreach villages providing primary health care to the community. Health centres are staffed with health assistants, lady health visitors (LHVs), MWs and PHSs who are trained mainly in public health and PHC and are provide promotive, preventive, curative and rehabilitative services. Each subrural health centre serves 2-10 villages. Cadres of AMWs who are uniformed and trained to attend to deliveries have also been deployed at the village level; however, they are not authorized to give injections or vaccination and are not salaried. Community health workers are trained for community health especially for preventive aspects.

1.2.2. Health system constraints

Based on health system research activities carried out by the Research and Development division of the Department of Health Planning since 1995, health managers and planners identified and classified three main constraints and barriers in health systems. These barriers impact the Immunization programme in equal measure with other programmes. They are:

Service delivery barriers: On the demand side, service delivery barriers to immunization and MCH services in Myanmar are varied and in many instances locally defined by cultural, geographic, socioeconomic and security factors. Financial barriers to access are cited in most assessments. On the supply side, there are some common themes, including limitations in infrastructure, logistics, and transport and supply systems. The population living in hard-to-reach areas has limited access to health services.
Organizational, management and coordination barriers: There is fragmentation of health organization along vertical programme lines and underperformance in the area of health management, which is resulting in inefficiencies and inequities in health services provision. Planning, supervision, management and information systems at state/region and township level are very limited in quality and effectiveness, which negatively impacts health service performance, particularly in terms of the overburdening of work and insufficient support for midwives at the peripheral level (subrural health centres). There is also management underperformance in the areas of financing and financial management, integrated township and state/region planning and nongovernmental organization (NGO) coordination.

Human resource barriers: Inequities in distribution, numbers, mix and motivational factors of the health workforce, particularly at the most peripheral level of the system, are the major identified constraint on reaching the hard-to-reach or unreached populations.

1.2.3 Plans for improvement

The Government of Myanmar has launched a health system strengthening (HSS) programme in view of the above barriers and constraints, in order to improve service coverage for essential PHC components such as immunization and MCH by strengthening programme coordination, improving health planning systems and strengthening human resources management.

The HSS programme directly addresses the three main health system barriers outlined above, and responds to the National Health Policy of Myanmar, the main goals of which include health for all using a PHC approach, production of sufficient as well as efficient human resources for health, and the expansion of health services to rural and border areas so as to meet the overall health needs of the population.

The expected outcomes of the programme include increasing and sustaining all antigens coverage as measured by DPT3 coverage to 90% and above
(nationally) and increases in deliveries by skilled birth attendants from 67.5% to 80% (in HSS-targeted townships) between 2011 and 2014. These outcomes will be achieved through management strengthening and through resourcing, implementation and monitoring of 180 Township Coordinated Health Plans (55% of all townships), and the staffing of RHCs in 90 townships (28% of all townships) to national standards. Coordinated township health planning will focus on the delivery of essential and targeted components of PHC (namely MCH, immunization, nutrition and environmental health services) with a focus on hard-to-reach areas in addition to these investments in systems capacity-building and service-planning and implementation. Additionally, these targeted facilities will be adequately provided with staff, transport logistics and life-saving drugs and equipment. It is proposed that by 2014, based on findings of operational research and health services evaluation, National Frameworks and Systems for Human Resource Development, Health Planning and Health Financing will be formulated for national scale-up in the next strategic health planning cycle.

One of the highlights of HSS is that Myanmar will implement a variant of the RED (Reaching Every District) approaches amplified to address the Myanmar context, based on its experience of the Crash programme. This strategy will act as the service delivery component of the overall HSS programme and will use EPI as the platform to deliver a wider package of schedule-able services (including EPI, MCH, emergency health, nutrition, communicable disease control and social mobilization) to the hard-to-reach populations. In Myanmar, the strategy has been named Reaching Every Community (REC).

1.3. Progress against key health indicators

The reported infant mortality rate in 2007 was 43.4 for urban and 46.3 for rural areas per 1,000 live births with a declining trend. The maternal mortality ratio in 2007 was 0.94 for urban and 1.36 for rural areas per 1,000 live births. The trend since 2003 is given in Figures 1 and 2 (Health in Myanmar, 2010).
Provisional figures for 2009-2010 indicate that 19 051 midwives and 31 787 AMWs are providing maternal care throughout the nation (Health in Myanmar, 2010). The ratio of midwifery-skilled providers (including AMWs) to villages is 1:1.3; the national target is at least one midwifery skilled person to every village (Health in Myanmar, 2010).

On the national level, antenatal care coverage was 64.6%, with Mon state having the highest coverage and Shan East the lowest. Sagaing, Ayeyarwady, Yangon, Shan (South), Bago (West), Chin, Shan (East) and Shan (North) had lower antenatal care coverage than the Union level, as shown in Figure 3.
Midwives attended to 47% of all deliveries, 13.7% of deliveries were attended by AMWs and 8% by trained traditional birth attendants. 1.3% of all deliveries were conducted in the RHC delivery room (MoH Annual Statistics report 2007, published August 2009).

The under-five mortality rate estimated in 2003 ranged from 58.7, 59.0, and 66.3 to 76.8 in different regions of the country (Coastal, Delta, Hilly and Central Plain) and it was 66.1 for the Union. Although there were very large variations, it is clear that three-quarters of the deaths occur within the first year of life since the corresponding infant mortality rates were 39.6, 45.6, 46.1 and 61.1, respectively, and 49.7 for the Union. Of the infant deaths, approximately one-third occurred in the first month of life (Overall and Cause Specific under Five Mortality Survey, MoH/UNICEF, 2002–2003). However, under-five mortality was 71 and infant mortality was 54 in the State of World Children 2009.

Within Myanmar, there are significant geographic disparities. All data sources estimate rural mortality to be at least 25% higher than urban mortality (National Mortality Survey of 1999). There are also wide regional and state variations with the highest mortality in the “Hilly Areas” and “Central Plains” (Under 5 mortality survey, 2002–2003, Department of Health [DoH]).
For children who die between the age of two and five months, the leading causes of deaths are acute respiratory infection (ARI), septicaemia, brain infection, beriberi, diarrhoea and malaria. For children ages 6-11 months, the leading cause of death is also ARI followed by diarrhoea. For children ages one to four years, the leading cause of death is diarrhoea followed by ARI and brain infection (Cause Specific under 5 mortality survey, 2002 - 2003, DoH).

1.4. National immunization programme

1.4.1. Structure and function

The EPI in Myanmar was launched in 1978 in 104 townships, along with the commencement of the First Peoples Health Plan 1978-1982, when Bacillus Calmette-Guerin (BCG), DPT and tetanus toxoid (TT) vaccines were introduced. BCG vaccine had been in use in the country since the 1950s. Children under one year of age were protected against DPT and TB. In order to prevent neonatal tetanus, pregnant women were given two doses of TT.

In 1990, there were 211 townships implementing EPI, by 1995, 305 townships were covered and by 1997 almost all areas of all townships were covered. From 1998 onwards strategies like expansion of the cold chain using solar-powered refrigerators and conducting outreach immunization sessions during the dry season (Crash programme) were initiated for hard-to-reach and remote border areas to make EPI operationally cover the whole country.

Measles and polio vaccines were introduced into the routine EPI programme for infants in 1987. HepB vaccine was introduced in phases from 2003 and covered the whole country in 2005. A combination of fixed, outreach and crash immunization delivery systems was used to achieve nationwide coverage.

The National Immunization schedule being implemented in Myanmar is shown in Table 2.
### Table 2. National Immunization Schedule in Myanmar

<table>
<thead>
<tr>
<th>Target Groups</th>
<th>Time of immunization</th>
<th>Antigen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child</td>
<td>Birth</td>
<td>HepB birth*</td>
</tr>
<tr>
<td></td>
<td>6 weeks</td>
<td>BCG,DPT1, oral polio vaccine1 (OPV1), HepB1*</td>
</tr>
<tr>
<td></td>
<td>10 weeks</td>
<td>DPT2, OPV2, HepB2</td>
</tr>
<tr>
<td></td>
<td>14 weeks</td>
<td>DPT3, OPV3, HepB3*</td>
</tr>
<tr>
<td></td>
<td>9 months</td>
<td>Measles 1</td>
</tr>
<tr>
<td></td>
<td>18 months</td>
<td>Measles 2nd dose 1</td>
</tr>
<tr>
<td>Pregnant woman</td>
<td>1st antenatal contact</td>
<td>Tetanus toxoid 1st dose (TT1)</td>
</tr>
<tr>
<td></td>
<td>4 weeks after first dose</td>
<td>Tetanus toxoid 2nd dose (TT2)</td>
</tr>
</tbody>
</table>

*Birth dose of HepB is given only in big hospitals with a paediatric ward. In these instances, the child is given HepB 2nd dose at 6 weeks and 3rd dose at 14 weeks of age.

1 Routine measles 2nd dose planned from 2012.

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

The Central EPI (CEPI) and Central Epidemiology Unit (CEU) of the DoH are responsible for formulation and development for planning, management of vaccine and cold chain, supplies and logistics, surveillance and outbreak management of vaccine-preventable and other emerging diseases, as well as training, supervision, monitoring and evaluation.

CEPI and CEU of DoH, WHO and UNICEF collaborate closely in implementing priority vaccine-preventable disease control activities. While immunization is an important strategy for disease control and mortality reduction in its
own right, it is also a proven cost-effective intervention yielding broad benefits to both mothers and children. Completing a child’s immunization series in a timely manner requires that the child-and, most often, the mother-be seen by a health-care provider (usually midwife) in Myanmar at least four or five times during the first year of life. This repeated contact with the health-care system provides opportunities for general health screening and provision of timely health information and advice.

The EPI is administered by central-level staff assigned to the programme and working through state/regional counterparts and TMOs and other public health staff at townships, RHCs and subrural health centres. Special Diseases Control Units (SDCUs) provide supervisory, monitoring and technical support to the Central EPI unit at state/regional level. Vaccination is delivered through a combination of approaches like fixed, outreach, mobile and crash. The challenges to immunizing infants on a monthly basis are mostly systemic in nature and described below. Routine immunizations are delivered at fixed sites at MCH centres, urban health centres and township hospitals in urban areas, and at RHCs and subcentres in the rural areas. The majority of immunization services are provided through outreach activities in wards and villages. In 2009–2010, 1 845 health assistants, 3 305 LHVs, 19 051 midwives, 529 PHS-Is and 1 645 PHS-IIs constituted the EPI workforce.

In some townships, a special programme called the crash programme is implemented, whereby immunization services are provided to children younger than 3 years of age three to four times a year during “open” (or “favourable”) seasons in some part of the township, or in entire township where accessibility is an issue. During 2009, 93 townships from 12 states/regions carried out the crash programme in hard-to-reach areas within the townships.

The EPI is monitored at all levels through field visits, desk reviews of the data reported in the reporting formats and in the health management information system (HMIS) at each level, using standardized monitoring indicators like coverage rates, drop-out rates and vaccine wastage. The
The former two are disaggregated to the RHC and subcentre level and the latter aggregated at the state/region and national levels. This is an ongoing activity and helps 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 dedicated cadre of supervisors at all levels. At the RHC and subcentre levels, they are the LHV and the health assistants. They use standardized supervisory checklists and formats to record their findings and provide feedback. The CEPI visits and supervises at state/regional and township levels, and visitors’ registers are used to record the findings and suggestions if any for follow-up in subsequent visits. The township managers supervise the rural and urban health centres.

Programme evaluation is carried out by the EPI managers at the townships (TMOs) in monthly meetings, and at state/regional (S/R Director and SDCU) and national levels (CEPI 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, although two multiple indicator cluster surveys (MICS) were conducted in 1990 and 2002. Another round of MICS is underway and results will be finalized by end of 2011.

### 1.4.2. National Immunization Programme Key Achievements

During the period 2007–2011 the national EPI programme has gained in strength and has seen increases in reported coverage and a subsequent drop in incidence of VPDs. Some of the key programme achievements are:

- By 2011, reported DPT 3 and HepB coverage had reached 86% and measles first dose 88% nationally.
- In 2007, Comprehensive Strategies Package for Measles Control (CSPMC) including measles catch-up campaign.
Maternal and neonatal tetanus elimination (MNTE) status validated by WHO in 2010.

Cold chain expanded, new central cold room made functional in 2008 to address issues of cold-chain storage. Expansion of solar cold chain in hard-to-reach RHCs and townships with electricity supply <8 hours started.

Integration of other MCH preventive services using EPI as the platform started with EPI plus in the post-Nargis cyclone period in Nargis-affected townships.

Fully integrated intervention - “Reaching Every Community” (REC)-conceptualized to reach geographically, economically and socio-culturally hard-to-reach populations with predefined package of interventions.

Significant reduction in incidence of Vaccine preventable diseases.

1.4.3. Immunization programme - strengths, constraints and the way forward

The immunization programme in Myanmar is reaching more than 85% of all beneficiaries with all antigens leading to an overall reduction of the burden of VPDs as reported by the surveillance data. The cold chain backbone is gradually being expanded to the RHC level. The staff is well trained and experienced with both routine and various NIDs (polio), TT and measles supplementary immunization activities (SIAs). The programme is supported by policy-makers and the public at large. It is adequately funded with logistics like cold-chain equipment, vaccines and injection safety equipment being provided by international partners and the human resources and facilities provided by the government. Awareness within the population about the programme is good and it enjoys the support of communities and their leaders due to sustained social mobilization activities and the obvious impact of the programme in reducing disease load within the community.
The challenges to the programme are in the form of systemic barriers:

(1) Accessibility to services is variable across the country and is related to mobility of the population, geographic and socioeconomic access and security. Seventy townships are identified as both physically and socioeconomically hard to reach, especially mountainous areas in the states and border areas and peri-urban communities in major cities.

(2) Health infrastructure is limited in some townships, particularly in relation to transport and logistics.

(3) Health workforce motivation is limited at times due to inadequate means of transport for mobility, operational costs, incentives and large workload.

(4) Integration of immunization occurs at the delivery level, but more opportunities or mechanisms exist for improving other health interventions in partnership with immunization.

Although senior managers identify that existing service delivery strategies are appropriate for the conditions in Myanmar, they also observe that there are some inequities and underserved pockets in coverage between townships.

The way forward will consequently require a large emphasis on integration of services, strengthening micro-planning, vaccine wastage reduction and enhanced communication strategies in order to reach unreached populations, along with audits for data quality assurance. Immunization quality indicators like adverse events following immunization (AEFI) surveillance and VPD surveillance will be strengthened. New interventions will require developments of more accurate assessments of burden of disease. Similarly, disease eradication, elimination and control of VPD will require strengthening of surveillance systems. The need to secure sustainable sources of finance for vaccines will require a focus on advocacy strategy and exploration of innovative mechanisms to generate adequate resources within the country from donors and the government for reliable financial planning to ensure that the EPI programme grows both qualitatively and quantitatively.
Comprehensive multi year plan 2012-2016

This cMYP is a continuation of the previous five-year plan 2007-2011, during which period Myanmar was able to reach high coverage of most antigens: DTP3 and HepB coverage reached around 90% in the country. There was significant improvement in programme management, injection safety, cold chain and vaccine management. The country was able to reduce outbreaks and incidence of VPDs and MNTE was validated.

2.1. Goals of the multi year plan

The vision of the immunization programme during the next five years is to contribute towards achieving the MDG 4 goals by 2015 by reducing under-five morbidity and mortality caused by VPDs.

The overall objectives are to achieve the routine immunization coverage of 95% nationally with minimum 80% coverage in every township for all antigens by 2016 and to accelerate disease control.
2.2. The specific objectives as aligned to the GIVS strategic areas

2.2.1. Protecting more people in a changing world

(1) To achieve the routine immunization coverage of 95% nationally with at least 80% coverage in every township for all antigens by 2016.

(2) To accelerate disease control activities: polio eradication, measles elimination and MNTE status maintenance.

2.2.2. Introducing new vaccines and technologies

(3) To reduce burden of diseases for which sufficient disease burden data is now available in the country, efficacious and safe vaccines are available and which are economically beneficial to immunize such as of Hib and rotavirus.

2.2.3. Integrating immunization, other linked interventions and surveillance in the health system context

(4) To increase coverage of other PHC interventions through improved linkages with immunization.

(5) To align national policies and programmes to the regional and global priorities and to ensure sustainability of the national immunization programme.

This cMYP and its consequent annual plans will help accelerate the rate of decline of childhood morbidity and mortality due to VPDs.

The focus strategies to be used are:

(1) Strengthening routine immunization

(2) Rolling out reaching the unreached through REC strategy

(3) Accelerating measles elimination activities by systematic introduction of measles second dose

(4) Strengthening ongoing polio eradication activities
(5) Maintaining MNTE status and introducing Td vaccine through school-based immunization programme

(6) Introduction of Hib vaccine in 2012

(7) Estimation of disease burden for other diseases for which vaccines are available

(8) Developing mechanisms for sustainable funding

2.3. Situational analysis

2.3.1. Routine immunization

2.3.1.1. Immunization coverage and wastage

Coverage for all antigens has been consistently rising over the years except for a small period in 2005 - 2006 when there was a drop seen, consequent to AEFI in the country. Although the immunization rates are generally high, coverage needs to be maintained at or above 90% nationally and 80% in all significant geographic subregions, i.e. state/regions and townships to maximize population-wide benefits. The trends in immunization coverage from 2006 to 2011 are shown in Figure 4.

Figure 4. Immunization coverage in Myanmar 2006-2011
Official country estimates of immunization coverage for 2011 based on reports available from 313 out of the 330 townships in the country were 93% for BCG, 86% for DPT3, 90% for OPV3 and HepB 3, 38% for measles first and 88% for the second dose and 80% for TT2+ for pregnant women. In 2011, EPI coverage across all primary antigens is more than 87% (Figure 5).

Figure 5. Immunization coverage across townships, 2011
The 330 townships of 2010, stratified according to the coverage of DPT3 and measles-containing vaccine - first dose (MCV1), are shown in Table 3.

**Table 3. Stratification of townships by coverage of DPT3 and MCV1**

<table>
<thead>
<tr>
<th>Coverage</th>
<th>&lt;50%</th>
<th>50–79%</th>
<th>80–89%</th>
<th>90–94%</th>
<th>&gt;=95%</th>
<th>Townships not reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPT3</td>
<td>11 (3%)</td>
<td>50 (15%)</td>
<td>126 (38%)</td>
<td>81 (25%)</td>
<td>45 (14%)</td>
<td>17 (5%)</td>
</tr>
<tr>
<td>MCV1</td>
<td>12 (4%)</td>
<td>41 (12%)</td>
<td>92 (28%)</td>
<td>87 (26%)</td>
<td>81 (25%)</td>
<td>17 (5%)</td>
</tr>
</tbody>
</table>

This stratification shows that in 2011, 38% of 126 townships had more than 90% DPT3 coverage and 51% of townships had more than 90% MCV1 coverage. Seventeen townships could not conduct routine immunization in 2011 due to security and other operational difficulties.

The estimated vaccine wastage rates for all antigens in Myanmar are: BCG 77%, DPT 44%, HepB 29%, OPV 42%, measles 43% and TT 32% (WHO/UNICEF Joint Reporting Form, 2011). Wastage was high especially in rural areas where population density is sparse resulting in a requirement for more outreach immunization sessions. At the same time, the birth rate is declining, leading to a decreasing number of eligible children in each session. Moreover, due to limited cold-chain reach at the immunization sites and RHCs, multidose vial policy is still not in practice.

**2.3.1.2. Hepatitis B introduction**

GAVI New and Underutilized Vaccine Support along with UNICEF and WHO has been instrumental in strengthening the EPI and helping introduce new and underutilized vaccine i.e. HepB. The outcomes have been a steady rise in antigen coverage nationally since 2005-2006.

Introduction of HepB vaccine throughout the entire country was accomplished in three phases beginning 2003-2005 with GAVI support. Hospital birth dose was introduced at the major hospitals (200-bedded and above) and in
hospitals where there are at least 30 births per month. In 2007 after a HepB review this was expanded to all health facilities with cold-chain capacity. This plan was accompanied by the implementation of a plan to achieve safe injections (including plans for transition to auto-disable or AD syringes) and safe management of sharps waste. Consequently, there was much improvement in terms of injection safety and waste disposal, programme management, AEFI surveillance, systematic micro-planning and vaccine management along with the introduction of HepB immunization.

HepB coverage has been steadily growing and by 2009 90% of beneficiaries were being covered with three doses of HepB vaccine. The birth dose administration for all institutional deliveries is still lagging and efforts need to be made to ensure universal coverage for all births in the facilities offering the service. Efforts needed are: advocacy and coordination to arrange services at the hospitals along with provision of cold-chain equipment; proper and regular information exchange and reporting; instruction to provide birth dose at hospitals (both public and private) with cold-chain facilities; and strengthening the vaccine delivery system.

**2.3.2. Accelerated disease control activities**

**2.3.2.1. Measles**

The objective of Measles Control Programme in Myanmar was to reduce the estimated number of measles deaths by 90% in 2010 relative to 2000 estimates. The strategies were:

1. Provide every child with a dose of measles vaccine by nine months of age.
2. Give all children at the age of 18 months a second opportunity for measles immunization.
3. Establish case-based surveillance.
4. Improve clinical management of complicated cases, including vitamin A supplementation.
Routine measles immunization for nine-month-old children in EPI began in 1987. Currently, EPI is immunizing around 1.5 million of children under one year of age with measles vaccine every year. At present, it is planned to conduct follow-up measles immunization for under-five children in a periodic manner, i.e. every three to four years, with the simultaneous introduction of two-dose strategy for measles immunization in routine EPI.

In 2007, the CSPMC, including a measles catch-up campaign targeting six million children, was conducted throughout the country and 5.7 million of the children aged of nine months to give years were immunized against measles. The stratification of MCV1 coverage given in Table 2 above shows that in 2011, 249 townships (i.e. 75%) had less than 90% MCV1 coverage. This is significant as for measles elimination every township should have 90% coverage with the first dose of measles vaccine.

There were 864 cases of febrile rashes illness in 2011 and laboratory investigations were done in all outbreaks. 842 were confirmed as measles and 22 as rubella. Age distribution of the reported cases in 2010 and 2011 are shown in Table 3 (WHO-SEARO Immunizations and Vaccine Development Annual EPI Reporting Form for the Period January-December 2010, and 2011). In 2011, 38 outbreaks occurred and 36 were confirmed as measles outbreaks. 207 cases were laboratory-confirmed cases.

**Table 4. Distribution of measles cases by age groups in 2010 and 2011**

<table>
<thead>
<tr>
<th>Year</th>
<th>&lt;1 year</th>
<th>1-4 years</th>
<th>5-9 years</th>
<th>10-14 years</th>
<th>15+</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>8%</td>
<td>14%</td>
<td>19%</td>
<td>39%</td>
<td>21%</td>
</tr>
<tr>
<td>2011</td>
<td>5%</td>
<td>22%</td>
<td>29%</td>
<td>26%</td>
<td>17%</td>
</tr>
</tbody>
</table>

**Strategies suggested accelerating measles elimination**

Myanmar has reached the goal of 90% measles mortality reduction; however, there are many challenges to sustaining these gains and progress towards
elimination. The main challenge is to reach higher coverage of MCV1 (95%) and MCV2 (90%) from the 2011 coverage level of 88% and 80%, respectively. As MCV2 coverage is not nationwide, systematic introduction of MCV2 to all 18-month-old children needs to be implemented along with strengthening of routine immunization and rolling-out of the REC strategy to ensure that unreached children in both urban and rural areas are reached. In addition, follow-up campaigns at regular interval will be implemented. A national follow-up measles campaign for children aged nine months to five years was conducted in March 2012 and reached 97% of the targeted 6.4 million children in this age group.

2.3.2.2. Maternal and neonatal tetanus

A mix of strategies has been adopted to protect women and newborns against tetanus. Strategies included immunizing women with tetanus vaccine through routine immunization services and supplementary immunization activities in selected high-risk areas, improving the coverage of “clean” deliveries, and conducting surveillance for neonatal tetanus case detection and response.

Based on National Plan of Action for Maternal and Neonatal Tetanus Elimination, SIAs for women of childbearing age (15-45 years) have been conducted since 1999. In 1999 a township risk assessment was conducted as a part of the national plan for MNTE which identified 132 of the total 325 townships as high-risk. All women of childbearing age in these townships were targeted with three rounds of SIAs over a period of two years. In the following years high-risk assessments were made by data review and TT SIA rounds were implemented in identified high-risk townships from 2003 to 2009, when Myanmar was in a position to claim the elimination status and prepared for validation (Table 5).
Table 5. Coverage of TT SIAs, 1999-2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of townships</th>
<th>Women of childbearing age targeted</th>
<th>Percentage coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Round 1</td>
</tr>
<tr>
<td>1999</td>
<td>54</td>
<td>1 669 560</td>
<td>92</td>
</tr>
<tr>
<td>2000</td>
<td>37</td>
<td>706 890</td>
<td>92</td>
</tr>
<tr>
<td>2003</td>
<td>12</td>
<td>651 920</td>
<td>93</td>
</tr>
<tr>
<td>2004</td>
<td>19</td>
<td>687 480</td>
<td>79</td>
</tr>
<tr>
<td>2005</td>
<td>32</td>
<td>853 040</td>
<td>93</td>
</tr>
<tr>
<td>2006</td>
<td>25</td>
<td>526 920</td>
<td>76</td>
</tr>
<tr>
<td>2008</td>
<td>27</td>
<td>870 970</td>
<td>90</td>
</tr>
<tr>
<td>2008</td>
<td>60</td>
<td>1 675 800</td>
<td>92</td>
</tr>
<tr>
<td>2009</td>
<td>7</td>
<td>115 600</td>
<td>96</td>
</tr>
<tr>
<td>2010</td>
<td>4</td>
<td>299 229</td>
<td>91</td>
</tr>
</tbody>
</table>

In its efforts to validate MNTE in Myanmar, the government requested WHO, assisted by UNICEF, to conduct a lot-quality-assurance-cluster survey in 2010. The survey was planned and conducted in three high-risk townships - Saw (Magway region), Singaing (Mandalay region) and South Okalappa (Yangon region). Based on the findings, Myanmar was considered to have eliminated neonatal tetanus (NT) in 2010.

In 2011, out of the 313 townships reporting to the central level, coverage with TT 2+ doses was 16 townships (5%) below 5%, 58 (18%) with 50-79%, 90 (27%) with 80-89%, 86 (26%) with 90-94% and 63 (19%) with 95% or more. This stratification shows that 181 townships (55%) had less than 90% TT2+ coverage. Understanding the dynamics of the latter statistic is important for maintenance of MNTE, as it may in fact reflect a growing number of women who are fully protected against tetanus and no longer eligible to receive TT immunization.
In 2011, a total of 32 cases of NT were diagnosed. However, the number of cases reported by townships did not exceed the elimination threshold of fewer than 1 per 1,000 live births per township.

**Strategies suggested for maintaining MNTE status**

These include maintaining high clean-delivery rates and proper cord care practices; maintaining >80% routine TT immunization for target women, introduction of school-based Td immunization and implementing quality surveillance for NT as needed. Accordingly, Myanmar plans to introduce a school-based vaccination programme taking advantage of high school enrolment to provide additional Td dose to all children in class 1 in primary school (five to six years) in order to boost their immunity against tetanus and diphtheria. A review for sustaining MNT is being planned in Q4 of 2012.

### 2.3.2.3. Poliomyelitis

Myanmar is conducting four strategies for polio eradication with very strong political commitment and tremendous community involvement. These strategies are:

1. Routine immunization to achieve high OPV coverage throughout the country.
2. Conducting SIAs: Myanmar has conducted 10 NIDs and nine Sub-National Immunization Days (SNIDs).
3. Conducting mopping-up immunization in areas with wild polio virus transmission, and preemptively in high-risk areas, to boost immunity.
4. AFP surveillance.

Myanmar was free from polio in the period 2003-2005. In April 2006 there was a case of vaccine-derived polio virus (VDPV) from Pyin Oo Lwin township of Mandalay region and the evidence of circulation of VDPV was also shown among its seven contacts. In 2007, the AFP surveillance system detected 11 wild polio virus (WPV) cases in Maungdaw and Buthidaung townships of Rakhine state in the months of March, April and May. In the same year,
cases of VDPV were detected in one township each of Yangon, Kayin, Bago East and Mon states and regions, and the virus was related to VDPV detected in Mandalay Region.

The government was concerned by the importation of WPV in Rakhine state and took immediate action to contain and stop transmission in the surrounding areas where the outbreak had occurred. The immediate response was to conduct a house-to-house mop-up campaign with monovalent OPV 1 offered to all children from birth to five years of age in Rakhine state and its adjoining Paletwa township of Chin state.

On account of the outbreaks of WPV and VDPV, NIDs were organized for all under-five children in Myanmar in November-December 2007 and January-February 2009. These NIDs were able to immunize 98.13%, 97.83%, and 99.99%, 99.92% of the targeted 7.23 million children, respectively. The onset of the last case of WPV in Myanmar was on 31 May 2007.

As a continuation of NIDs in 2007 and 2009, two rounds of SNIDs were implemented in 81 townships from 7 states/regions on the 3-4 April 2010 and 1-2 May 2010. These SNIDs reached 98.10% and 99.72% of targeted eligible children, respectively.

On 6 December 2010, a single case of VDPV (Type2) was reported in Myanmar in a seven-month-old child in Yamethin Township from Mandalay Region. Two rounds of large-scale vaccination with OPV (SNID) were carried out in May and June 2011 to prevent the spread of VDPV and build the immunity of 2.9 million under-five children in 126 townships in nine states and regions.

In addition to this, AFP surveillance is being strengthened in all silent areas and orientation of clinicians and reporting units is being done. Myanmar being a large country with a diverse geographical setting and limited human resources for surveillance, there may be areas of poor reporting even though reported non-polio AFP rates are above 2 cases per 100 000 population under the age of 15 years. The adequate stool collection rates must have also been above minimum targets of 80%.
An additional tool that is being used to monitor risk is immunity gaps among non-polio AFP cases from six months to five years. Myanmar has shown an increasing immunity gap. This trend indicates susceptible pockets of undervaccinated children. To improve these gaps, intensification of EPI and or supplementary immunization activities will be planned for high-risk areas in 2012-2015.

2.3.2.4. Laboratory surveillance of vaccine-preventable diseases: polio, measles/ rubella and Japanese encephalitis (JE)

Laboratory surveillance for VPDs is well supported by the National Health Laboratory in Yangon which in turn is supported by reference laboratories. Myanmar has a WHO-accredited laboratory. In 2009 the WHO Regional Office for South-East Asia (WHO-SEARO) introduced a new and more sensitive real-time Polymerase Chain Reaction intratypic differentiation test (ITD). Myanmar now has full ITD capacity. While the capacity of the country's polio laboratory network is adequate, challenges include sustaining the high accreditation standards and high operational costs. Myanmar also has laboratory capacity for serological confirmation and virus detection. However, genotyping is performed by the regional reference laboratories. WHO provides technical and financial support to the EPI laboratory network in Myanmar.

2.3.3. Immunization, injection safety and waste management

GAVI Immunization Services Support (ISS) along with UNICEF and WHO has been instrumental in facilitating strengthening of the immunization delivery systems by helping introduce safe injection technologies establish a policy for safe disposal of immunization-related waste and introduce immunization waste disposal technologies. The outcomes have been a steady rise in antigen coverage nationally since 2005-2006.

The government took the opportunity provided by GAVI and the Vaccine Fund to improve injection safety along with the introduction of HepB vaccine.
The plan was to offer immunization using AD syringes to 25% of children by 2002, 72% by 2003, and universalize thereafter.

A national policy guideline for immunization injection safety was developed. Basic health staff (BHS) were trained in a phased manner in line with the HepB vaccine introduction. Immunization waste disposal was also addressed and guidelines developed for each level. Incinerators (DeMontfort) were built as a pilot project in a few townships. The BHS were instructed to burn and bury waste in a pit after each immunization session.

A review of the immunization injection safety and waste disposal needs to be carried out during the period of this plan.

2.3.4. Adverse events following immunization (AEFI)

An AEFI surveillance system was established in 2003 in Myanmar as a benchmark of immunization safety. Surveillance is done for these events and they are reported nationally. The immunization programme has in the past suffered reverses due to negative media publicity about these events. Efforts are being made and will have to be strengthened for effective advocacy and communication strategies with appropriate technical responses to maintain the confidence of the community on immunization.

In Myanmar a total of 15 AEFI were reported and investigated in 2010. Most of the cases were classified as coincidental. AEFI surveillance needs to be strengthened in the coming years.

2.3.5. Vaccine preventable disease surveillance 2006–2011

Seven VPDs are included in the 17 diseases under national surveillance. Surveillance of three VPDs under accelerated control, namely poliomyelitis, measles and NT, has been strengthened using the following strategies:

1. Integrating other VPD surveillance into AFP surveillance
2. Strengthening measles case-based investigation
3. Strengthening lab network to support surveillance
(4) Supporting SDCU capacity along with Regional Surveillance Officers for rapid response to outbreaks of communicable diseases, emerging diseases and for rumour verification.

In the last five years, important improvements have been made in programme performance resulting in reduction of mortality and morbidity caused by VPDs diseases among children. Routine immunization coverage in infants and pregnant women has improved, and the incidence of VPDs - measles, NT and pertussis - has declined, whereas diphtheria rates are fluctuating.

**Table 6. Reported cases of VPDs 2006–2010 (WHO/ UNICEF Joint Reporting Form 2006-2011)**

<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polio (WPV &amp; VDPV)</td>
<td>0</td>
<td>1</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Diphtheria</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>19</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Pertussis</td>
<td>11</td>
<td>13</td>
<td>13</td>
<td>5</td>
<td>3</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Measles (Clinical &amp; virological)</td>
<td>314</td>
<td>735</td>
<td>1088</td>
<td>333</td>
<td>217</td>
<td>190</td>
<td>2046</td>
</tr>
<tr>
<td>Neonatal tetanus</td>
<td>35</td>
<td>41</td>
<td>49</td>
<td>25</td>
<td>34</td>
<td>19</td>
<td>32</td>
</tr>
<tr>
<td>Rubella</td>
<td>-</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>13</td>
<td>11</td>
<td>103</td>
</tr>
<tr>
<td>Japanese encephalitis</td>
<td>-</td>
<td>0</td>
<td>28</td>
<td>5</td>
<td>8</td>
<td>18</td>
<td>20</td>
</tr>
</tbody>
</table>

Concerning other VPDs, Japanese encephalitis (JE) has occurred in sporadic outbreaks in recent years. Outbreaks were serologically confirmed. Sentinel surveillance in one major children’s hospital showed that rotavirus infection reached the proportion of 70% of admitted diarrhoea cases in the peak winter season.
2.3.6. Immunization cold-chain and logistics system

In Myanmar most of the relevant supplies required by the immunization programme are supplied by UNICEF and WHO. The logistics of these supplies are maintained by the government with support from UNICEF, WHO and GAVI funds.

The vaccines are received in the central vaccine store in Yangon which was established in 2008. This new store, with three 30 cubic metre walk-in coolers and four 20 cubic meter walk-in freezers, became fully functional in 2008. Vaccine is distributed from this store to the two other regional stores in Magway and Mandalay. The three main stores then distribute vaccine to 22 subdepots located around the country at one- to three-month intervals by air and/or road, whichever is feasible.

The townships collect the vaccines from these subdepots and from there they are distributed to the RHCs/station hospitals once every month to carry out the immunization activities. Each of the townships has been provided with both electrical or solar refrigerator and non electrical cold-chain equipment, based on the local availability of electricity.

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.

Countrywide, by June 2010 there were six walk-in coolers and seven walk-in freezers which support 297 ice-lined refrigerators (ILRs), 282 deep freezers (DFs), 194 twinsets (ILR/DF), and 254 ice-pack freezers in different locations. Effective Vaccine Management assessment was done in 2004. A computerized database system for cold-chain inventory was prepared in 2004.

Newer solar-powered refrigerators are being installed in townships, station hospitals and RHCs where there is an erratic supply of electricity and which are very remote and geographically inaccessible. The central EPI division has a fixed criterion for selection of townships for installation of this equipment. Around 621 solar refrigerators have been installed in 472
locations countrywide. New generation temperature monitoring tools such as “freeze tags” and “fridge tags” have been introduced in the programme. Also, new technology cold-chain solar equipment, i.e. solar chill, is being installed in some places to strengthen cold chain in very remote areas.

The other supplies like cold-chain equipment, AD syringes, and reporting, monitoring and supervision tools are stored in the CMSD in Yangon and supplied countrywide from there.

AD syringes are distributed by the CMSD along with reconstitution syringes and stored at subdepot level for further redistribution to townships in a bundled approach along with vaccines. Along with these, safety boxes are also distributed.

The logistics operations are manned and maintained by a dedicated staff at each level of storage and distribution. Stock management is computerized at the central cold room but done manually at regions and townships levels. Vaccine indent forms at all levels starting from midwife level and stock registers are kept at township and regional levels.

The cost of the supply transport and storage up to the township level is borne by the government, but below the township level the BHS have to bear substantial out-of-pocket costs. But despite this a sense of pride and professionalism among health staff, especially the midwives, is the major reason for the success of immunization programme.

Myanmar in the recent past has shifted from a six-dose HepB vial to a 10-dose vial to ensure availability and also to optimize the cold-chain space.

In July-August 2011, an EVM assessment was done in Myanmar which indicated that vaccine storage capacity is adequate for current requirements as well as for the introduction of pentavalent (DPT-HepB-Hib) and second-dose measles vaccines at all levels. Introduction of further new vaccines such as Pneumococcal and Rota will require a dedicated capacity analysis at all levels. The assessment also recommends: conducting a national temperature monitoring study to establish temperature profiles at all levels.
and during distribution; introducing increased cold-chain supervision at all levels to strengthen temperature management; reconciliation of distribution documentation and the monitoring of cold-chain indicators; introduction of freeze indicators; installation of electronic continuous temperature monitoring recordings and alarms in all cold/freezer rooms; introduction of contingency plans to protect vaccines at all facilities in the event of disaster such as floods, storms and earthquakes (not limited to power failure); introduction of a national system for the monitoring of vaccine wastage in unopened vials and inclusion of these results in vaccine forecasting procedures; establishing a dedicated guidance document and standard operating procedures (SOP) for cold-chain management (Cold Chain Manual); establishing written SOP between CEPI, CMSD and customs to control and secure the arrival of vaccines at Yangon International Airport and a national Guidance document on the Disposal of Immunization-Related Waste including vaccines, syringes, needles and safety boxes; and introduction of a computerized stock control system at the Central Cold Store.

2.3.7. National regularity authority (NRA)

The NRA is important to ensure quality of vaccines. In Myanmar, the quality assurance and regulatory oversight of vaccines from other sources are assured by the Myanmar Food and Drug Administration (National Regulatory Authority). The country uses procurement services through the United Nations (UN) and all vaccines used in EPI programme are WHO-prequalified.

2.3.8. Financing

The programme is led and run by the MoH with the support of international agencies.

The Government of Myanmar funding to the programme is in terms of human resources, salaries, facilities and establishment and operational costs. The government also co-finances pentavalent vaccines, while support to EPI from international agencies comes mainly from WHO, UNICEF, GAVI etc.
External donors in 2011 were the Australian Agency for International Development, the Government of Japan, the Japan Committee “Vaccines for the World’s Children” (JCV), the United States Centres for Disease Control and Prevention, Japan, UK and UNICEF National Committees for Fund Mobilization.

UNICEF, GAVI and WHO support the Government of Myanmar with logistics and operational costs. All vaccines are procured by UNICEF or through the UN procurement system. WHO also supports some operational costs for programme along with technical support through a team of surveillance officers.

2.3.9. Stakeholders’ function in EPI

There are three main stakeholders in the immunization programme: the government, nongovernmental and international partners, and the community. The Government of Myanmar provides overall leadership and stewardship to the programme through policy and programme decisions, as well as the infrastructure for programme delivery, both physical and human resources.

The main actors are UNICEF, WHO and JCV. National NGOs and professional associations help in the advocacy and social mobilization activities specifically during large-scale vaccination campaigns and other special vaccination activities.

The community which receives this programme facilitates it by providing the necessary support through local structures like village health committees etc. to the BHS in terms of space and community mobilization.

2.3.10. National Committee on Immunization Practices (NCI P)

A National Committee on Immunization practices was established in 2008 to provide technical guidance to the national EPI programme based on the epidemiological trends in the country. The committee consists of experts from various disciplines.
The NCIP still needs to be strengthened and more regular meetings should be conducted.

2.3.11. New technologies, new vaccine and under used vaccines

With the availability of financing through new mechanisms like GAVI and the International Financing Facility for Immunization it has become easy for Myanmar to offer more protection to its children.

Myanmar introduced HepB vaccine in 2003. It was accompanied by the introduction of AD syringes and immunization waste disposal systems. In 2007, after the measles campaign, balance measles vaccine was utilized to provide a second opportunity for children aged 18 months in selected townships. This was reported as second-dose coverage. However no regular procurement of measles second-dose vaccine has been planned till now. Leftover stock from the 2007 campaign has been utilized to boost immunity in children and in response to outbreaks. UNICEF supported additional measles vaccine to support post-disaster emergency needs. Myanmar has been approved for measles second-dose vaccine with support from GAVI in 2012. This will boost the progress towards elimination goals and contribute to MDG 4 by 2015.

Myanmar with GAVI support will also introduce Hib vaccine into the programme as a combination with DPT and HepB vaccines in 2012, thereby increasing the protection against morbidity and mortality caused by Hib while reducing the injection load on the community.

Some vaccines which are underused and can be considered for introduction, based on the disease burden are JE, rubella, pneumococcal, human papilloma virus, typhoid and rotavirus.

2.3.12. Advocacy and communication

Advocacy for immunization is done by the Central EPI division assisted by the partners. The tools used are formal and informal meetings, presentations and information sheets etc. The inputs used for preparing these come from
local sources like the disease burden, coverage etc. and from any internationally published reports and studies which are epidemiologically and programmatically in line with Myanmar’s situation.

Messages for the population and BHS are developed by the DoH with support from the development partners.

2.4. Objectives, milestones, strategies, and activities

2.4.1. GIVS-1: PROTECTING MORE CHILDREN IN THE CHANGING WORLD

2.4.1.1. Objective 1: To achieve routine immunization coverage of 95% nationally with at least 80% coverage in every township for all antigens by 2016

2.4.1.1. A. Major programme milestones

Table 7 describes the intended major programme milestones in the next five years.

<table>
<thead>
<tr>
<th>Table 7. Major programme milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Milestones</strong></td>
</tr>
<tr>
<td>Townships stratified by coverage with measles first dose</td>
</tr>
<tr>
<td>&lt;50% coverage</td>
</tr>
<tr>
<td>50–59% coverage</td>
</tr>
<tr>
<td>60–69% coverage</td>
</tr>
<tr>
<td>70–79% coverage</td>
</tr>
<tr>
<td>80–89% coverage</td>
</tr>
<tr>
<td>90–100% coverage</td>
</tr>
<tr>
<td>Nationally</td>
</tr>
<tr>
<td>BCG</td>
</tr>
</tbody>
</table>
**Expanded Programme on Immunization**

**Myanmar Multi Year Plan 2012-2016**

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>DPT3</td>
<td>93%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DTP-HepB-Hib3*</td>
<td>45%</td>
<td>93%</td>
<td>94%</td>
<td>94%</td>
<td>95%</td>
</tr>
<tr>
<td>OPV3</td>
<td>93%</td>
<td>93%</td>
<td>94%</td>
<td>94%</td>
<td>95%</td>
</tr>
<tr>
<td>HepB Birth Dose</td>
<td>10%</td>
<td>11%</td>
<td>12%</td>
<td>13%</td>
<td>15%</td>
</tr>
<tr>
<td>Measles 1</td>
<td>90%</td>
<td>91%</td>
<td>92%</td>
<td>93%</td>
<td>94%</td>
</tr>
<tr>
<td>Measles 2</td>
<td>75%</td>
<td>78%</td>
<td>80%</td>
<td>82%</td>
<td>85%</td>
</tr>
<tr>
<td>Td</td>
<td></td>
<td></td>
<td>Pilot (60%)</td>
<td>70%</td>
<td>80%</td>
</tr>
<tr>
<td>TT2+ Pregnant Women</td>
<td>90%</td>
<td>91%</td>
<td>92%</td>
<td>93%</td>
<td>94%</td>
</tr>
</tbody>
</table>

*Since Introduction of Penta is proposed from July 2012, Penta coverage for 2012 is expected to be 45%; however, DPT3 coverage will reach 93%.

### Wastage Targets

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine Immunization</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>BCG</td>
<td>70%</td>
<td>70%</td>
<td>65%</td>
<td>65%</td>
<td>60%</td>
</tr>
<tr>
<td>OPV</td>
<td>40%</td>
<td>35%</td>
<td>30%</td>
<td>30%</td>
<td>25%</td>
</tr>
<tr>
<td>Measles (1 and 2)</td>
<td>40%</td>
<td>38%</td>
<td>35%</td>
<td>35%</td>
<td>30%</td>
</tr>
<tr>
<td>Penta</td>
<td>25%</td>
<td>20%</td>
<td>18%</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>TT</td>
<td>40%</td>
<td>40%</td>
<td>35%</td>
<td>30%</td>
<td>25%</td>
</tr>
<tr>
<td>Td</td>
<td></td>
<td></td>
<td>25%</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>HepB Birth Dose</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>
2.4.1.1. B. Strategies and key activities

Strategy 1: Strengthening of programmatic capacities and capabilities in management, and implementation in immunization.

Key activities:

Service delivery component

1. Implementation of REC strategy to reach the hard to reach communities and deliver the immunization service and other high-impact health interventions to unreached community in 70 selected townships
   - Training on REC strategy including costed micro-plan development to state/regional and township levels (for the selected townships)
   - Development of REC costed micro-plan and implementation of REC in the selected townships
   - Review and improve REC strategy.

2. Implementation of routine immunization by fixed outreach strategies
   - Immunization with BCG, OPV, DTP, HepB and Measles first dose for under-one-year children and measles second dose for 18-month-old children.
   - Introduce pentavalent vaccine in 2012 in routine immunization together with BCG, OPV and measles first dose to under-one-year and measles second dose to 18-month-old children.

Surveillance and monitoring

3. Improvement of data management, supervision, and monitoring and evaluation systems at all levels
   - Conduct a comprehensive study (EPI review) on all aspects of EPI to identify issues on both supply (service provider) and demand (beneficiary) sides.
   - Review and standardize the EPI planning tools and monitoring indicators for all levels and introduce electronic EPI data management systems and online data updating.
Advocate and coordinate with local government authorities and
Department of Health Planning to increase vital registration and ensure
availability of HMIS data quarterly.

Census/consensus to get standard method of population estimation
(EPI review recommendation).

Advocacy and communication

4. Demand generation for immunization services
   - Develop advocacy message for community leaders.
   - Develop communication strategies and plans including information,
education and communication (IEC) materials for mother and child
health-care package for the unreached population in collaboration
with Central Health Education Bureau. (Development of
comprehensive advocacy package for mother and child health)

Programme management

5. Human resource capacity development
   - Strengthen training teams’ capacity at all levels, update all EPI-relevant
     training materials and develop annual training plans.
   - Strengthen service delivery capacity by conducting capacity-building
     programmes and activities for all EPI-related personnel and managers.
   - Strengthen supportive supervision.
   - Build capacity of managers, BHS, community-based organizations and
     NGOs at all levels on social mobilization skills and strategies in the
     context of EPI.
   - Develop, print and distribute manuals/field guidelines such as
     Immunization in Practice for Basic Health Staff, Mid-Level Manager
     Manual on Immunization, Management of AEFI, and Guidelines for
     Case-based Measles Surveillance and AFP Surveillance, etc.
6. Development of human resources and enhancement of their skills with
government and partner support, including continued deployment of
programme support personnel
   - Enhance capacity for programme delivery at all levels through
     additional human resources, appoint/continue programme support
     personnel (e.g. cold-chain engineers and logisticians) and explore
     feasibility of providing performance-based incentives.

7. Programme monitoring and evaluation
   - Strengthen and institutionalize mechanisms like NCIP, interagency
     coordination committee etc.
   - Regular and scheduled programme reviews, evaluations and
     assessments to provide insights into the programme components and
     facilitate interventions to increase effectiveness.

8. EPI evaluation workshop annually at national level, biannually at state/
    regional level and quarterly at township level
   - Review routine immunization coverage, dropout rate and vaccine
     wastage rate, conduct surveillance and investigation of VPD outbreaks
     and AEFI, cold chain, supply and logistics, and conduct SWOT analysis
     of the whole programme.
   - Formulate recommendations, develop annual plan and micro-plans
     based on the recommendations, re-plan the micro-plans.

9. EPI coverage survey in 2013
   - Recruit national consultant for EPI coverage survey.
   - Formulate survey design for EPI coverage.
   - Conduct the coverage survey.

10. Ensuring immunization safety by making immunization-related activities
    safe for the beneficiary, health-care provider and the community
    - Strengthen injection safety, waste disposal and AEFI surveillance.
### Activity timeline:

**Table 8. Activity timeline for Strategy 1**

<table>
<thead>
<tr>
<th>Key Activities for Strategy 1</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Implementation of REC strategy to provide the immunization service and other high-impact health interventions to unreached community in 70 selected townships</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2. Implementation of routine immunization by fixed, outreach and mobile strategies</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3. Improvement of data management, supervision, and monitoring and evaluation systems at all levels</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4. Demand generation for immunization services</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5. Human resource capacity development</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6. Development of human resources and enhancement of their skills with government and partner support, including continued deployment of programme support personnel</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7. Programme monitoring and evaluation</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>8. EPI evaluation workshop annually at national level, biannually at state/regional level and quarterly at township level</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>9. EPI coverage survey in 2013</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Ensuring immunization safety by making immunization-related activities safe for the beneficiary, health-care provider and the community</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>11. EPI review</td>
<td>X</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
**Strategy 2: Ensuring the quantity and quality of vaccine by strengthening supply and logistics systems**

**Key activities:**

*Vaccine supply, quality and logistics*

1. Assurance of quality of vaccine
   - Strengthen regulatory agency capacity vis-à-vis vaccine quality assurance.
   - All vaccines to be procured through UNICEF or its procurement system.
   - Periodically monitor functional status of cold chain and devices, and its maintenance activities, to be conducted by cold-chain technicians.

2. Strengthening of supply of vaccines and devices
   - Conduct a vaccine and supplies distribution/management system assessment. Implement improvement plan based on EVM assessment findings and recommendations.
   - Conduct national reviews of cold chain and logistics storage capacity as required with all relevant partners.
   - Develop multi-year and annual vaccine and supply distribution plan and cold-chain logistics forecasts.
   - Phase in vaccine stocks monitoring at subdepot level to monthly intervals and introduce electronic logistics monitoring and forecasting systems.
   - Facilitate bundling by creating a dry storage space in the central cold-chain facility.
   - Monitor vaccine usage and wastage monthly, including unopened vials, from subcentre to township level and introduce the use of wastage in unopened vials to forecast needs.
   - Improve session plan by systematic micro-planning, effective utilization of cold-chain equipment (electric and non-electric) and demand generation to reduce vaccine wastage.
3. Improving the capacity of cold-chain key persons at township level
   - Provide training on “Vaccine, Cold Chain and Logistics” for cold-chain key persons at township level.

4. Strengthening of vaccine distribution system
   - Replace non-repairable and ageing cold-chain equipment.
   - Strengthen safe vaccine delivery by provision of a new cold van for Central Cold Room by using Immunization Services Support (ISS) Fund through WHO.

Activity timeline:

Table 9. Activity timeline for Strategy 2

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Assurance of quality of vaccine</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2. Strengthening of supply of vaccines and devices</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3. Improving the capacity of cold-chain key persons at township level</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Strengthening of vaccine distribution system</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Cold-chain assessment/temp study</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>6. Periodic Replacement of non-repairable and ageing cold-chain equipment</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7. Utilization of insulated vehicles</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Expansion of use of new generation temperature monitoring devices</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Strategy 3: Strengthening of cold chain based on immunization service delivery micro-plans at all levels

Key activities:

Vaccine supply, quality and logistics

1. Strengthening of cold-chain system at all levels

- External/internal cold chain review to be conducted in 2012 to assess adequacy of cold-chain system including utilization of solar cold-chain equipment and its impact on immunization service delivery.
- Develop and redesign the criteria for cold-chain expansion (both solar and traditional) based on the review findings, to support township, state/regional- and central-level service delivery plans.
- Develop SOP with CMSD on the arrival procedures and customs clearance for vaccines and dry stores which confirms the respective responsibilities between CMSD, CEPI and UNICEF.
- Develop contingency plan for delays in arrival of vaccine to ensure maintenance of the cold chain.
- Establish contingency plans for all stores including power supply, flooding, environmental storms and earthquakes, for storage and distribution.
- Train customs staff in maintenance of the cold chain for vaccine.
- Conduct a national temperature monitoring study to determine the temperature profiles of storage and distribution of vaccines in Myanmar and conduct temperature mapping studies of all cold rooms and freezer rooms at central and subdepot levels.
- Install functional continuous temperature traces at Mandalay and Magway subdepots and use of freeze indicators at all stores.

2. Capacity-building of cold-chain engineers from central cold room and subdepots and all staff handling vaccine vials
Assess training needs for cold-chain engineers from central cold room and subdepots.

Train cold-chain engineers from all levels including training for working in cold/freezer rooms for Mandalay and Magway subdepots, and training of vaccine temperature management for all levels.

Develop Cold Chain Manual and SOP for all health facilities and display on how to read vaccine vial monitor (VVM) poster in all cold-room and health facilities.

Adjust the responsibilities of all cold-chain supervisors to include the EVM assessment criteria and indicators.

Arrange study tour for cold-chain engineers for cold-chain management system.

Outsource cold-chain equipment maintenance.

Procure refrigerated vaccine vans for transportation and distribution of vaccine to sub-depots throughout the country.

Programme management

3. Strengthening cold-chain stock management system

Update current cold-chain equipment inventory and ensure their use and serviceability.

Physical counts of stock should be conducted at least four times a year.

Arrival vouchers (receipts) should be obtained from all lower-level facilities after delivery/collection and including adequate quality checks such as VVM status and freeze indicator status.

A clear stock-level policy for each level should be communicated with stores and reviewed monthly against indicators.

Implement computerized stock management system.
- A reporting system to monitor actual deliveries/collections against planned deliveries/collections should be implemented at all stores.

4. Ensuring proper maintenance of building and equipment

- Establish preventative maintenance plans for buildings and equipment at all levels.

**Activity timeline:**

**Table 10. Activity timeline for Strategy 3**

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Strengthening of cold-chain system at all levels</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2. Capacity-building of cold-chain engineers from central cold room and subdepos and all staff handling vaccine vials</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3. Strengthening cold-chain stock management system</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Ensuring proper maintenance of building and equipment</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Strategy 4: Development of a country-specific immunization policy and guidelines**

**Key activities:**

**Programme Management**

1. Formulation of the immunization policy by NCIP

- Preparatory workshop/meeting for policy development.
- Situation analysis in the context of immunization.
- Development of the immunization policy.
2. Endorsement of the developed policy by the government
   - Submission of the policy document to government
3. Implementation of endorsed policy nationwide

Activity timeline:

<table>
<thead>
<tr>
<th>Table 11. Activity timeline for Strategy 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>------------------------------------------</td>
</tr>
<tr>
<td>1. Formulation of the immunization policy by NCIP</td>
</tr>
<tr>
<td>2. Endorsement of the developed policy by the government</td>
</tr>
<tr>
<td>3. Implementation of endorse policy nationwide</td>
</tr>
</tbody>
</table>

Strategy 5: Effective collaboration with professional organizations and NGOs for demand generation

Key activities:

Advocacy and communication

1. Collaboration with professional organizations and NGOs to contribute to social mobilization of communities
   - Sensitize and train local authorities and NGOs on national EPI policies and routine immunization (inclusive of VPD and AEFI reporting).
2. Community mobilization by these organizations for routine immunization.
   - Mobilization of community by these organizations for better access to routine immunization.
Activity timeline:

**Table 12. Activity timeline for Strategy 5**

<table>
<thead>
<tr>
<th>Key Activities for Strategy 5</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Collaboration with professional organizations and NGOs to contribute to social mobilization of communities</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2. Community mobilization by these organizations for routine immunization</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

2.4.1.2. Objective 2: To accelerate disease control activities to decrease morbidity and mortality due to VPDs by 2015 and contribute towards achieving the MDG4 goals

2.4.1.2.1.A. Major programme milestones for measles elimination

Table 13 describes the intended major programme milestones in the next five years.

**Table 13. Major programme milestones for measles elimination**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Update of National Plan and Strategies for measles elimination.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintain &gt;=90% coverage of measles first dose in routine EPI</td>
<td>61%</td>
<td>75%</td>
<td>90%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Increase coverage of second dose of measles immunization through routine immunization at the age of 18 months to 90% by 2015</td>
<td>80%</td>
<td>80%</td>
<td>85%</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>Measles campaigns</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.4.1.2.1.B. Strategies and key activities for measles elimination

**Strategy 6: Strengthening comprehensive measles elimination programme.**

**Key activities:**

*Service delivery component*

1. Increasing and sustaining coverage of measles immunization first dose to > 95% nationally and 90% in every township by 2015
   - Stratify townships for activity planning based on level of coverage.
   - Improve township planning and supportive supervision in townships with less than 90% coverage.
   - Update social mobilization materials: poster, pamphlets for measles second dose.

2. Ensuring second dose by routine immunization reaching >90% and by SIAs reaching coverage of more than 95%
   - Provide two doses of measles vaccination to all children by 18 months of age through routine and REC approach to get at least 90% coverage in all townships.
Monitor and supervise townships with less than 90% coverage.

Provide follow-up campaign by 2015.

3. Improving case-based management and treatment with vitamin A and supportive treatment

- Update standard case management protocols.
- Train TMOs and BHS in case management.

Vaccine supply, quality and logistics

4. Forecasting and procurement of vaccines and logistics following bundling strategy through UNICEF

- Forecast and procure measles vaccine for routine immunization (measles first dose for nine-month-old children and measles second dose for 18-month-old children) and SIAs according to determined target age group.

Surveillance and monitoring

5. Strengthening case-based measles surveillance and achieving target indicators by 2012 by integrated disease surveillance with focus on rapid investigations of all suspected outbreaks and active case-based surveillance of measles in all townships

- To assure high quality surveillance, the surveillance system must be monitored regularly and systematically using a set of formal indicators:
  - Annual incidence of measles cases (laboratory-confirmed and epidemiologically linked) and deaths
  - Annual national incidence of (non-measles) suspected measles cases (target more than two per 100 000 population)
  - Percentage of townships annually reporting at least two (non-measles) suspected measles case per 100 000 population (target at least 80% townships)
  - Annual number of reported rubella cases
Percentage of reported suspected measles outbreaks fully investigated (target 100%)  
Completeness of monthly VPD surveillance reports (target 100%)  
Timeliness of monthly VPD surveillance reports (target 80%)  
Percentage of suspected measles cases tested in a proficient laboratory (target 80%)  
Percentage samples with laboratory results within 14 days of receiving at lab (target 80%)  
- Monitor case fatality rates.  
- Support measles surveillance through advocacy, training, and supervision.  
- Monitor measles elimination indicators during biannual meetings at states/regions and quarterly meetings in townships.  
- Maintain the accreditation of measles lab and its networks.  
- Strengthen lab capacity to support disease surveillance.  

Advocacy and communication  
6. Strengthening case-based measles surveillance and achieving target indicators by 2012 by development and implementation of social mobilization and advocacy strategy integrated in routine immunization, SIAs  
- Develop and implement social mobilization and communication plan to support measles elimination activities.  
- Advocate and collaborate with local governments and health-related departments to strengthen measles elimination activities.  
- Regional mass media/communication using local NGOs.  
- VPD newsletter including news of measles surveillance to provide feedback.  
- Support measles surveillance through advocacy, training, and supervision.
### Activity timeline:

#### Table 14. Activity timeline for Strategy 6

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1. Increasing and sustaining coverage of measles immunization first dose to &gt;95% nationally and 80% in every township by 2015</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2a. Ensuring second opportunity by routine immunization to reach coverage of at least 90%</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2b. Ensuring second opportunity by SIAs to reach coverage of at least 90%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>3. Improving case-based management and treatment with vitamin A and supportive treatment</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4. Forecasting and procurement of vaccines and logistics following bundling strategy through UNICEF</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5. Strengthening case-based measles surveillance and achieving target indicators by 2012 by integrated disease surveillance with focus on rapid investigations of all suspected outbreaks and active case-based surveillance of measles in all townships</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6. Strengthening case based measles surveillance and achieving target indicators by 2012 by development and implementation of social mobilization and advocacy strategy integrated in routine immunization, SIAs.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
### 2.4.1.2. II. A. Major programme milestones for polio eradication

Table 15 describes the intended major programme milestones in the next five years.

**Table 15. Major programme milestones for polio eradication**

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reach and sustain routine OPV3 coverage of &gt;95% nationally and 90% in every township</td>
<td>93%</td>
<td>93%</td>
<td>94%</td>
<td>94%</td>
<td>95%</td>
</tr>
<tr>
<td>Strengthen AFP surveillance countrywide with inclusion of private sector</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Monitor progress of polio eradication by National Certification Committee for Polio Eradication and NCIP</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SNID/NID</td>
<td>X*</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintain international certification standards of surveillance for polio and non-polio AFP rate at the national and state/regional level of more than 2/100 000 population under 15 years old</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Zero cases of wild and vaccine-derived polio virus.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Develop contingency plans in coordination with neighbouring countries for rapid response to any outbreak to interrupt polio transmission</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimate population immunity to polio using sero-surveys</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*In Q1 of 2012 one dose of OPV will be administered to all 0-5-year-old children along with measles campaign.*
2.4.1.2. II. B. Strategies and key activities for polio eradication

**Strategy 7: Strengthening of routine immunization and sensitive AFP surveillance to bridge any immunity gap by conducting NIDs/ SNIDs**

**Key activities:**

*Service delivery component*

1. Increasing and sustaining coverage of oral polio immunization 3rd dose to >95% nationally and 90% in every township by 2015, incorporated with other traditional vaccines
   - Improve township planning and supportive supervision in townships with less than 90% coverage incorporate in routine immunization.

2. Implementing SNIDs in the selected townships
   - Advocacy meetings, central/state and regional training for activity planning/ micro-planning, supervision.
   - Township micro-planning, training, social mobilization.
   - Conduct campaign immunization, supervision and monitoring.
   - Boost immunity against polio among children under five nationwide by adding one dose of OPV in Mass Measles Campaign in 2012.

3. Outbreak-response immunization
   - Immunize with OPV all under-five children according to standard guideline.
   - Review preparedness of plans for emergency high-quality supplementary immunization activities and outbreak response to polio cases in coordination with neighbouring countries as and when required.
   - Estimate population immunity to polio using sero-surveys.
Vaccine supply, quality and logistics

4. Forecasting and procurement of vaccines and logistics through UNICEF
   - Forecast and procure OPV routine immunization and SIAs according to determined target age group population.

Surveillance and monitoring

5. Maintaining international certification standards of surveillance for polio and non-polio AFP rate at the national and state/regional level of more than two per 100,000 population under 15 years old age, and strengthening of AFP surveillance together with surveillance of other VPDs, outbreak detection and response
   - Strengthen capacities of health staff in all facilities under the surveillance system to respond to AFP cases.
   - Monitor performance indicators to ensure surveillance quality.
   - Expand the surveillance system to include all public and private health facilities in order to progress towards effective AFP surveillance.
   - Conduct epidemiological analysis of VPD data to guide and strengthen routine immunization.
   - Explore feasibility of starting community-based surveillance by BHS.

6. Improving the quality and capacity of laboratory services in confirmation of outbreaks
   - Build capacity of laboratory staff.
   - Strengthen and expand laboratory facilities.

Advocacy and communication

7. Planning and implementation of a social mobilization and advocacy plan for all levels to promote polio eradication activities among policy-makers, programme managers, local government, NGOs and the community
• Develop advocacy message for policy-makers, programme managers, local government, NGOs, community leaders and the community.

• Conduct formative research, and develop, field test, disseminate and implement comprehensive advocacy and communication strategies and plans including IEC materials in collaboration with Health Education Bureau to reach unreached populations (Development of comprehensive advocacy package for mother and child health).

• Conduct advocacy and dissemination meetings at all levels to ensure more participation.

Programme management

8. Developing contingency plans in coordination with neighbouring countries for rapid response to any outbreak to interrupt polio transmission

• Review preparedness of plans for emergency high-quality supplementary immunization activities and outbreak response to polio cases in coordination with neighbouring countries as and when required.

Activity timeline:

Table 16. Activity timeline for Strategy 7

<table>
<thead>
<tr>
<th>Key Activities for Strategy 7</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Increasing and sustaining coverage of oral polio immunization 3rd dose to &gt;95% nationally and 90% in every township by 2015, incorporated with other traditional vaccines.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2. Implementing SNIDs in the selected townships</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>As needed</td>
<td></td>
</tr>
<tr>
<td>3. Outbreak-response immunization</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4. Forecasting and procurement of vaccines and logistics through UNICEF</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
5. Maintaining international certification standards of surveillance for polio and non-polio AFP rate at the national and state/regional level of more than two per 100,000 population under 15 years old age, and strengthening of AFP surveillance together with surveillance of other VPDs, outbreak detection and response | X | X | X | X | X | X

6. Improving the quality and capacity of laboratory services in confirmation of outbreaks. | X | X | X | X | X | X

7. Planning and implementation of a social mobilization and advocacy plan for all levels to promote polio eradication activities among policy-makers, programme managers, local government, NGOs and the community | X | X | X | X | X | X

8. Developing contingency plans in coordination with neighbouring countries for rapid response to any outbreak to interrupt polio transmission | X

9. One dose of OPV to 0–5 years old children around the whole country to boost the immunity against Polio to be given together with Mass Measles Campaign in 2012 | X
2.4.1.2. III. A. Major programme milestones for maintenance of maternal and neonatal tetanus elimination status

Table 17 describes the intended major programme milestones in the next five years.

**Table 17. Major programme milestones for maintenance of MNTE status**

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Development and implementation of National Plan and Strategies for MNTE maintenance.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Strengthening of active case-based surveillance</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Data review to identify high-risk townships</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Introduction of school-based immunization</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>TT SIAs from 20 selected townships</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Review of the MNTE elimination strategies by NCIP</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Improve clean delivery coverage in townships and nationally</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
2.4.1.2. III. B. Strategies and key activities for maintenance of MNTE status

**Strategy 8: Strengthening routine immunization and NT surveillance**

**Key activities:**

*Service delivery component*

1. Strengthening routine immunization so that coverage of DPT3 for children under one and TT2+ for pregnant women reaches 95% by 2016
   - Improve township planning and supportive supervision in townships with less than 90% coverage and incorporate in routine immunization.

2. Improving clean delivery coverage in townships and nationally
   - Distribute clean delivery kits (CDKs) in townships as well as nationwide.

*Vaccine supply, quality and logistics*

3. Forecasting and procurement of vaccines and logistics following bundling strategy through UNICEF
   - Forecast and procure TT vaccine, also for focal SIAs.

*Surveillance and monitoring*

4. Strengthening of active case-based surveillance and response to NT cases
   - Regularly review of maternal and neonatal tetanus surveillance and analyse township data at all levels.
   - Build capacity of staff in surveillance activities.
   - Strengthen active surveillance, outbreak detection and response by monitoring and supportive supervision.

*Advocacy and communication*

5. Planning and implementation of a social mobilization and advocacy plan for all levels as a part of routine immunization among policy-makers, programme
managers, local government, NGOs and communities for sustained participation in the maintenance of MNTE status

- Develop advocacy message for policy-makers, programme managers, local government, NGOs, community leaders and communities.
- Conduct formative research, and develop, field test, disseminate and implement comprehensive advocacy and communication strategies and plans including IEC materials in collaboration with Health Education Bureau to reach unreached populations (Development of comprehensive advocacy package for mother and child health).
- Conduct advocacy and dissemination meetings at all levels to ensure more participation.

Programme management

6. Developing national MNTE maintenance plan.
   - NCIP to develop MNTE maintenance strategies.
   - Introduce Td through school-based immunization.
   - Focal TT SIAs in 20 selected townships based on maintenance plan criteria.

7. Coordinating with Women and Child Health Department (WCHD) and HIV projects (through WHO, United Nations Population Fund, UNICEF) to improve CDK coverage in townships and nationally while avoiding overlapping distribution of CDK to townships
   - Develop distribution plans.
   - Coordinate and share information with WCHD and HIV projects.
**Activity timeline:**

**Table 18. Activity timeline for Strategy 8**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Strengthening routine immunization so that coverage of DPT3 for children under one and TT2+ for pregnant women achieves 95% by 2016</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2. Improving clean delivery coverage in townships and nationally</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3. Forecasting and procurement of vaccines and logistics following bundling strategy through UNICEF</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4. Strengthening of active case-based surveillance and response to NT cases</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5. Planning and implementation of a social mobilization and advocacy plan for all levels as a part of routine immunization among policy-makers, programme managers, local government, NGOs and communities for the sustain participation in the maintenance of MNTE status</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6a. Developing National MNTE maintenance plan</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6b. TT SIAs in 20 selected townships</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6c. Introduction of school based Td immunization</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>7. Coordinating with WCHD and HIV projects (through WHO, United Nations Population Fund, UNICEF) to improve CDK coverage in townships and nationally while avoiding overlapping distribution of CDK to townships</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
2.4.2.1. Objective 3: Reduction in under-five mortality and morbidity by 2016 by introduction of new and underused vaccines based on disease burden and cost-effectiveness

2.4.2.1. A. Major programme milestones

Table 19 describes the intended major programme milestones in the next five years.

**Table 19. Major programme milestones for introduction of new and underused vaccines**

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pentavalent vaccine with DPT-HepB-Hib introduced in EPI</td>
<td>93%</td>
<td>93%</td>
<td>94%</td>
<td>94%</td>
<td>95%</td>
</tr>
<tr>
<td>2. Strengthening and expansion of existing surveillance with setting-up of surveillance for other diseases for which affordable vaccines are available or likely to be available in near future</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

2.4.2.1. B. Strategies and key activities

**Strategy 9: Introduction of Hib vaccine as a pentavalent combination with DPT and HepB vaccines in the EPI.**

**Key activities:**

**Service delivery component**

1. Immunization with pentavalent vaccine (DPT-HepB-Hib) to children under one year throughout the country
   - Train BHS on introduction of the pentavalent vaccine.
- Develop micro-plan at township level.
- Ensure adequate cold-chain equipment as and where required.

**Vaccine supply, quality and logistics**

2. Forecasting and procurement of vaccines and logistics following bundling strategy through UNICEF
   - Forecast and procure pentavalent vaccine and logistics to end-user points.
   - Submit application to GAVI for grant for pentavalent introduction.

**Advocacy and communication**

3. Increasing coverage through demand generation and social mobilization
   - Pentavalent official national launch along with sustained media campaign.
   - Develop advocacy message for policy-makers, programme managers, local government, NGOs, community leaders and communities.
   - Conduct formative research, and develop, field test disseminate and implement comprehensive advocacy and communication strategies and plans including IEC materials in collaboration with Health Education Bureau to reach unreached populations (Development of comprehensive advocacy package for mother and child health).
   - Conduct advocacy and dissemination meetings at all levels to ensure more participation.

**Programme management**

4. Formulating and implementing vaccine introduction plan
   - Formulate and implement vaccine introduction plan, including micro-planning, training, monitoring and supervision, reporting, social mobilization etc. for all levels.
   - Determine phased introduction or whole-country introduction of the vaccines.
Activity timeline:

**Table 20. Activity timeline for Strategy 9**

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1. Immunization with the pentavalent vaccine (DPT-HepB-Hib) to children under one year</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>through out the country</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Forecast and procurement of vaccines and logistics following bundling strategy through UNICEF</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3. Increasing coverage through demand generation and social mobilization</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4. Formulating and implementing vaccine introduction plan</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Strategy 10:** Reducing transmission of hepatitis B by increasing coverage with HepB birth dose and three doses of DTP-HepB-HiB (pentavalent) vaccine delivered as routine, both in public and private sectors.

**Key activities:**

**Service delivery component**

1. Increasing and sustaining coverage of third dose of pentavalent (as HepB third dose) to >95% nationally and 90% in every township by 2016, incorporated with other traditional vaccines in routine immunization
   - Improve township planning and supportive supervision in townships with less than 90% coverage incorporate in routine immunization.

2. Promoting birth dose of HepB immunization
   - Encourage birth dose of HepB in institutional delivery where functioning cold chain with electrical or solar refrigerator is available.
Vaccine supply, quality and logistics

3. Forecasting and procurement of vaccines and logistics following bundling strategy

- Forecast and procure the HepB vaccine and logistics to end-user points.

**Activity timeline:**

**Table 21. Activity timeline for Strategy 10**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1. Increasing and sustaining coverage of third dose of pentavalent (as HepB third dose) to &gt;95% nationally and 90% in every township by 2016, incorporated with other traditional vaccines in routine immunization</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2. Promoting birth dose of HepB immunization</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3. Forecasting and procurement of vaccines and logistics following bundling strategy</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**Strategy 11: Getting information on diseases for which affordable vaccines are available or likely to be available in near future (disease burden and cost-effectiveness) to enable evidence-based decision-making - Hib, JE, rubella, rotavirus, cholera, typhoid, meningococcal meningitis, influenza-like illnesses (H5N1, H1N1, and seasonal influenza)**

**Key activities:**

*Programme management*

1. Continuing existing surveillance or expanding surveillance as per requirements after establishment and then integrating sentinel sites (for only new vaccines) with the national surveillance
Strengthen existing surveillance by building capacity of laboratory staff and expanding laboratory facilities.

Establish new sentinel sites and make regular provision of surveillance data to immunization programme and Epidemiology Department of DoH.

2. Continuing surveillance for H.influenzae infections, rotavirus, cholera, typhoid, meningococcal meningitis, influenza-like illnesses (H5N1, HINI, seasonal influenza) etc.

Form expert group of researchers, epidemiologists, programme managers and policy-makers to identify and build consensus on priority diseases and new and underused vaccines.

- Active typhoid surveillance at sentinel hospitals
- Integrated surveillance of rotavirus and Hib surveillance at major hospitals

Incorporate existing sentinel surveillance system and sites for surveillance of priority diseases. Carry out community-based surveys.

Plan for introduction of new vaccine in routine EPI.

Activity timeline:

**Table 22. Activity timeline for Strategy 11**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1. Continuing existing surveillance or expanding surveillance as per requirements after establishment and then integrating sentinel sites (for only new vaccines) with the national surveillance</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2. Continuing surveillance for H.influenzae infections, rotavirus, cholera, typhoid, meningococcal meningitis, influenza-like illnesses (H5N1, HINI, seasonal influenza) etc.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
3. Estimating population immunity for measles and poliomyelitis using sero-surveys

<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measles 2nd dose proposal to GAVI (Already done in 2011)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Achieving 80% coverage with measles second dose in every township and 90% nationally by routine immunization</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**Strategy 12: Sustaining measles second dose immunization by external resource mobilization**

**Key activities:**

*Programme management*

- Achieving 80% coverage with measles second dose in every township and 90% nationally by routine immunization
- GAVI has approved second dose of measles vaccine to Myanmar from 2012 for next 5 years. Immunization with measles second dose by routine immunization to 18-month-old children by proper micro-planning for routine immunization, supportive supervision, advocacy with community leaders and communication to community, and procurement of WHO-prequalified vaccine.

**Activity timeline:**

**Table 23. Activity timeline for Strategy 12**

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Measles 2nd dose proposal to GAVI (Already done in 2011)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Achieving 80% coverage with measles second dose in every township and 90% nationally by routine immunization</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
2.4.3. GIVS-3: INTEGRATING IMMUNIZATION, OTHER LINKED INTERVENTIONS AND SURVEILLANCE IN THE HEALTH SYSTEM CONTEXT

2.4.3.1. Objective 4: To increase coverage of other primary health-care interventions through improved linkages with immunization

2.4.3.1. A. Major programme milestones

Table 24 describes the intended major programme milestones in the next five years.

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. REC strategy implementation</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>townships</td>
<td>townships</td>
<td>townships</td>
<td>townships</td>
<td>townships</td>
</tr>
</tbody>
</table>

2.4.3.1. B. Strategies and key activities

**Strategy 13:** Implement a package of integrated PHC interventions using immunization as a platform to reach hard-to-reach areas and populations by REC, using GAVI, HSS and others

**Key activities:**

*Service delivery component*

1. Implementing REC strategy to reach hard-to-reach areas and populations

   - Train BHS on REC strategy and costed micro-plan development in REC townships.
   - Develop micro-plans for REC implementation.
   - Immunization with seven antigens for under-five children and TT for pregnant women.
• Deliver nutrition, maternal and child health care, disease control, IEC and environmental health services to hard-to-reach areas and populations.

**Vaccine supply, quality and logistics**

2. Ensuring timely arrival of adequate vaccines and other supplies required to implement REC in the REC townships

• Submit timely REC costed micro-plans by the respective townships to CEPI.

• Coordinate with CEPI and CMSD to ensure timely arrival of adequate vaccines and other required supplies to the respective townships.

**Advocacy and communication**

3. Planning and implementation of a social mobilization and advocacy plan for all levels among policy-makers, programme managers, local government, NGOs and communities to obtain support and participation in the REC

• Develop advocacy messages for policy-makers, programme managers, local government, NGOs, community leaders and communities.

• Conduct advocacy meetings at all levels to ensure participation.

**Programme management**

4. Managing REC strategy to be effective and efficient

• Monitor and evaluate the incremental efficiency, effectiveness and impact of combined interventions and their means of delivery.

• Review of the REC strategy by independent expert/s.
**Activity timeline:**

**Table 25. Activity timeline for Strategy 13**

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Implementing REC strategy to reach hard-to-reach areas and populations</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2. Ensuring timely arrival of adequate vaccines and other supplies required to implement REC</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>in the REC townships</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Planning and implementation of a social mobilization and advocacy plan for all levels among</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>policy-makers, programme managers, local government, NGOs and communities to obtain support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and participation in the REC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Managing REC strategy to be effective and efficient.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**2.4.4. GIVS-4: IMMUNIZATION IN A CONTEXT OF GLOBAL INTERDEPENDENCE (FINANCING AND INTERNATIONAL COOPERATION)**

**2.4.4.1. Objective 5: To align national immunization policies and programme with regional and global priorities and to ensure sustainability of the EPI**

**2.4.4.1. A. Major programme milestones**

Table 26 describes the intended major programme milestones in the next five years.
Table 26. Major programme milestones for alignment of national immunization policies and programme with regional and global priorities and to ensure programme sustainability

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Review and align EPI priorities to achieve MDG 4 goals by 2015</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Develop and implement advocacy strategy for policy-makers and business-persons to ensure financial sustainability of EPI</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Vaccine self-sufficiency initiative (e.g. TT and HepB vaccine production)</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

2.4.4.1. B. Strategies and key activities

Strategy 14: National immunization policies and programme priorities outcomes aligned with regional and global recommendations

Key activities:

Programme management

1. Review of the EPI together with key stakeholders on its activity performance and impact in the context of the country

   - Desk review/International review on EPI schedules and immunization strategies including school-based immunization, coverage, immunization system performance indicators and incidence of VPDs, and support formulation of the strategies which address the prioritized issues based on the review findings to meet MDG4.

2. Develop national immunization policy to support implementation of the strategies formulated as required.

   - NICIP to formulate immunization policy.

   - Endorsement of the developed policy by government.
Activity timeline:

Table 27. Activity timeline for Strategy 14

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Review of the EPI together with key stakeholders on its activity performance and impact in the context of the country</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2. Development of the National immunization policy to support the implementation of the strategies formulated as required</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Strategy 15: Attaining operational, financial and technical efficiencies and self-sufficiency in programme management

Key activities:

Advocacy and communication

1. Developing and implementing plans to attain operational efficiencies
   - Advocate with donors for sustained funding.
   - Build capacity of programme managers on donor engagement strategy including meetings and conferences, etc.

Programme management

2. Developing financial sustainability plan by attaining financial efficiencies and self-sufficiency in programme management
   - Conduct financial review to assess the needs of the evolving programme in the present and the future.
   - Recommend requirements, mechanisms and modalities for resource mobilization and to achieve financial efficiency and self-sufficiency.

3. Developing and implementing vaccine self-sufficiency initiative
   - Strengthen production of TT and HepB vaccines locally.
   - Obtain NRA approval for selected locally produced vaccines.
Activity timeline:

Table 28. Activity timeline for Strategy 15

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Developing and implementing plans to attain operational efficiencies</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2. Developing financial sustainability plan by attaining financial efficiencies and self-sufficiency in programme management</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3. Developing and implementing vaccine self-sufficiency initiative</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

2.5. Immunization costing and financing

2.5.1. Macroeconomic information

The macroeconomic information was included in the costing and financing estimation. The estimated 2011 gross domestic product (GDP) per capita is 671,920 Kyats (US $781) and it is projected to increase by an average of 8.6% annually.

Table 29. *Macroeconomic information of the country from 2011 to 2016

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>GDP per capita (USD)</td>
<td>781.30</td>
<td>848.57</td>
<td>921.63</td>
<td>1000.98</td>
<td>1087.16</td>
<td>1195.88</td>
</tr>
<tr>
<td>Total health expenditures per capita (THE per capita) (USD)</td>
<td>19.02</td>
<td>21.21</td>
<td>23.65</td>
<td>26.37</td>
<td>29.40</td>
<td>33.94</td>
</tr>
<tr>
<td>Government health expenditures (GHE) as a proportion of THE</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
</tr>
</tbody>
</table>

* Macroeconomic information, current and projected, Myanmar in USD (Calculated from GDP information in Statistical Yearbook 2009, Central Statistical Organization, Govt of the Union of Myanmar and at the UN exchange rate of 860 Kyats for 1 USD)
2.5.2. Costing Methodology for the cMYP 2012-2016

To implement the planned strategies and activities successfully during the cMYP period it is essential to have adequate financing available for them. It is the responsibility of the MoH and the central EPI supported by the Interagency Coordination Committee to ensure that financing for the programme is secured from both local and international sources. The cost implications of the proposed programme strategies and activities and how they relate to the available financing for them are highlighted in this section. Strategies are proposed to improve the operational and economic efficiency and the programmatic impact along with its financial viability.

The costing for effective vaccine management and improvement of cold-chain maintenance along the distribution chain proposed by the EVM assessment done in July-August 2011 is also included in costing of cMYP 2012-2016.

Implementing this multiyear plan will require increasing costs over the 2012-2016 periods. The major increases in programme cost are driven mainly by:

- Introduction of new vaccines
- SIAs
- Increases in the population of children to be vaccinated due to coverage improvements and overall increase in the annual birth cohort
- Expanding and supporting immunization-related health systems
- Introduction of integrated delivery strategies using immunization as a platform to reach the hard-to-reach populations and areas countrywide
- Increased human-resource and immunization infrastructure funding
The different EPI system components were costed on the basis of the planned activities and inputs required. The costs were derived on the basis of the planned interventions and activities. Considering the product of unit prices, quantities required each year along with proportion of time spent by human resources on immunization-related activities was used to derive costing of all inputs and operational costs. Past spending was used as a basis to project estimated future expenditure. All these different approaches are brought together in the cMYP Excel costing tool (cMYP-Costing-Tool-Vs.2.5-En.xls downloaded from the WHO Immunization financing website). This was used to derive costs from the following components:
- Vaccines and injection supplies
- Personnel costs (EPI-specific and shared)
- Vehicles and transport costs
- Cold-chain equipment, maintenance and overheads
- Operation cost for campaigns
- Programme activities, other recurrent costs and surveillance

The cost profile of routine immunization was analyzed for 2011 as a baseline: 27.86% on traditional vaccines, 7.82% on underused vaccines (HepB), 10.45% on injection supplies, 11.06% on personnel, 0.45% on transport, 22.49% for cold-chain equipment, 19.60% on other routine recurrent costs, 0.18% on vehicles and 0.08% other capital equipment (see Figure 8).

![Figure 8. Baseline cost profile for 2011 (routine immunization)](image)

### 2.5.3. Costing of cMYP

1. **Vaccines and injection devices**: the costs are a function of the unit prices for individual vaccines, with quantities determined by the target
population, which is adjusted for by coverage and wastage objectives. The prices are based on information from UNICEF supply division and the vaccine prices sheet of cMYP costing tool. For the five-year period a total of US $62.07 million will be needed for the traditional, underused and new vaccines and injection materials; the majority of this will be for the new pentavalent vaccine. The introduction of pentavalent vaccines in 2012 also contributes to the high budget requirement in 2012 and it will be secured by the Myanmar government’s contribution for co-financing and GAVI’s co-financing.

2. **Personnel costs:** Over the period 2012-2016, the total personnel cost (minus shared costs) is US $10.66 million. The average cost (routine only) for total resource requirement per DTP-targeted child is US $20.9 for the five years. The cost estimates are based on unit expenditure on different personnel cadres of DoH working in EPI at the different levels of the system and the proportion of time adjusted for time spent on EPI-related activities. The cost and time spent on supervision and outreach activities were included for the different cadres of staff at the different level of the system. The unit expenditures are based on prevailing government gross wages, salary and travelling allowance. The quantities available and needed for the duration of the cMYP were included. Time spent on EPI was estimated by input of the different levels of staff.

3. **Cold-chain equipment procurement and maintenance:** Myanmar has invested over the last cMYP period to develop a robust backbone of cold chain over the country so as to maintain vaccine quality right up to the beneficiary. One central cold-chain store and 24 subdepots have been established to support the 330 townships. The townships have the capacity to store vaccine up to one month, as some townships with electricity supplies of fewer than eight hours per day have been provided with solar cold-chain equipment. In this plan, procuring a cold van as a cold-chain improvement by Immunization Services Support (ISS), and to establish new subdepots, replace old equipment, furnish new health facilities, fill the current gap and procure spare parts and cover the maintenance, a total of US $21.06 million will be needed for the five-year period. The cost of US $372,500 for the
effective vaccine management and cold-chain maintenance improvement proposed by the EVM assessment done is July-August 2011 is also included in this cMYP.

4. **Operational costs for campaigns:** Myanmar is one of the priority countries for measles elimination by the Global Measles Elimination Initiative and is implementing a plan to achieve this goal by 2015. Measles follow-up campaigns are planned in the next five years along with strengthening of surveillance and treatment of cases. The country has already interrupted the transmission of WPV; however, with the outbreak of VDPV in Mandalay Region in December 2010, Myanmar will be conducting supplementary immunization activities to regain transmission-interrupted status. The WPV outbreak in China, a neighbouring country, makes nationwide polio immunization jointly with the mass measles campaign necessary in 2012, leading to a high budget requirement for this year. Maternal and neonatal tetanus was validated as having been eliminated in Myanmar by an international survey team in 2010. Myanmar needs to maintain this status and will have to formulate and implement a plan to do so in the next five years. These plans may include conducting SIAs in high-risk areas and townships. The total estimated cost of conducting the planned supplemental immunization activities over the five-year period for three more SNIDs and one measles campaign in 2015 and three focal SIAs for TT is US $30.26 million.

5. **Programme activities, other recurrent costs and surveillance:** The costs for programme activities like building overheads (electricity, water), training, social mobilization, surveillance of vaccine preventable diseases, data management, laboratory and other similar activities were also derived based on the past trends in expenditure. The total cost of these activities over the period of five years is US $49.83 million.
Table 30. Costing for five years of cMYP by categories

<table>
<thead>
<tr>
<th></th>
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<td>Routine Recurrent Costs</td>
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<td>$12,778,051</td>
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<td>$11,168,602</td>
<td>$11,112,598</td>
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<td>$2,396,734</td>
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<td>New</td>
<td>$8,243,735</td>
<td>$10,141,688</td>
<td>$9,003,763</td>
<td>$6,972,725</td>
<td>$8,221,925</td>
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<td>Sub-total routine</td>
<td>$45,634,556</td>
<td>$55,296,458</td>
<td>$50,762,156</td>
<td>$46,023,363</td>
<td>$50,236,037</td>
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<td>$11,081,460</td>
<td>$11,081,460</td>
<td>$11,081,460</td>
<td>$11,081,460</td>
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<td>Sub-total</td>
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<td>$66,377,918</td>
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<td>Recurrent</td>
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<td>$34,966,841</td>
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<td>Routine Capital Costs</td>
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<tr>
<td>Vehicles</td>
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<td>$742,295</td>
<td>$742,295</td>
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<td>Sub-total</td>
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<td>Campaign Costs</td>
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<td>Polio campaign</td>
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<td>$4,465,589</td>
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<td>Vaccines and Injections Supplies</td>
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<tr>
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<td>$34,101,750</td>
<td>$28,870,354</td>
<td>$34,637,578</td>
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<td>Shared Health Systems Costs</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shared personnel costs</td>
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<td>$4,025,988</td>
<td>$4,137,615</td>
<td>$4,249,242</td>
<td>$4,360,869</td>
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<td>Subtotal</td>
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<tr>
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<td>$46,031,286</td>
<td>$45,278,581</td>
<td>$43,159,597</td>
<td>$44,839,248</td>
<td>$235,401,153</td>
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<tr>
<td>Shared Health Systems Costs</td>
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<td></td>
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<tr>
<td>Shared personnel costs</td>
<td>$3,915,250</td>
<td>$4,025,988</td>
<td>$4,137,615</td>
<td>$4,249,242</td>
<td>$4,360,869</td>
<td>$21,109,956</td>
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<tr>
<td>Operational costs</td>
<td>$3,915,250</td>
<td>$4,025,988</td>
<td>$4,137,615</td>
<td>$4,249,242</td>
<td>$4,360,869</td>
<td>$21,109,956</td>
</tr>
<tr>
<td>Subtotal</td>
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<td>Total</td>
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<td>$53,553,811</td>
<td>$51,657,981</td>
<td>$53,560,606</td>
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</table>

These costs are again analysed by different cMYP components in Table 31. The total programme cost for the five-year period is US $173.88 million. Of this, 52% (US $89.71 million) is for vaccine supply and logistics, 6% (US $11.05 million) is for service delivery, 2% (US $4.03 million) is for advocacy and communication, 5% (US $8.06 million) is for monitoring and disease surveillance, 6% (US $11.1 million) is for programme management, 17% (US $30.26 million) is for SIAs , and 11% (US $19.67 million) is for shared health system costs.
2.5.4. Financing of the programme in 2011 (baseline year) and 2012 - 2016

Based on the programme cost categories, the past and future financing available for the respective cost areas was derived from partners. The base financing profile for 2011 excluding the campaign and shared costs shows the Government of Myanmar share to be 20%, UNICEF’s 58%, WHO’s 15%, GAVI’s 6% and potential donors’ 2% (see Figure 9).

![Diagram showing proportion of contributions by different donors and government in 2011](image-url)
Total secured financing from government, government co-financing for GAVI vaccine, WHO, UNICEF and GAVI for the period 2012-2016 is US $85.14 million, while the total probable financing is US $33.46 million. Therefore, the funding gap including only secured funds is 51%, while and the gap with secured and probable funds is 32% for the five-year period.

### 2.5.4.1 Interventions to improve financial viability of the programme

The funding gap of 51% (with secured funds only) for five years implies that the programme must seek innovative means to raise required resources. The routine traditional vaccines, supplemental immunization activities, cold-chain equipment and the operational costs for maintenance and outreach activities all have only probable funding after 2012. Figure 10 shows secure financing and funding gaps for 2012-2016.

![Figure 10. Secure financing and funding gaps 2012-2016](image-url)
Figure 11 also shows secure financing, probable financing and funding gaps for 2012-2016.

Figure 11. Future secure and probable financing and funding gap 2012-2016

2.5.4.2 Programme sustainability

To ensure sustainability of the programme, the government means to focus its attention on creating/strengthening mechanisms for sustainable financing and vaccine supplies. Mobilizing of the fund for the country programme in the next multiyear plan period will be made through traditional and new partners. All efforts will be made to leverage GAVI resources to facilitate introduction of new and underused vaccines like measles second dose, Hib, pneumococcal and rotavirus in the country programme. These activities will focus on mobilizing resources to close the identified gap. As Myanmar has manufacturing capacities...
for TT and HepB vaccines there will be a need to start a “vaccine sufficiency initiative” so that over a period of time the country can try to become self-reliant in a few traditional vaccines, so that the resources saved could be used to support or co-finance other high-value vaccines.

The programme, as part of its regular monitoring process, will monitor the trends in financing to ensure it is moving towards improved financial sustainability by reducing its financing gaps, and converting more probable financing to secure financing. Indicators for financial sustainability that the programme will use include:

- % of funding gaps to total programme needs for the period of cMYP
- % total programme costs financed by in-country sources of financing
- % of total programme costs financed by government
Annex 1: Recommendations of the EPI Desk Review 2007

Desk Review 2007 recommendations:

- Provision of the HepB vaccine birth dose should be expanded to children born in all hospitals where adequate cold chain exists to store vaccine.

- Revision of immunization card and reporting formats to include HepB schedule.

- The Ministry should develop a coverage goal for the HepB vaccine birth dose.

- To reach infants born at home with a birth dose, a pilot project of the feasibility of using HepB vaccine outside the cold chain should be considered.

- The Ministry of Health should consider applying to GAVI for HSS funding.

- Discussions on sustainability of HepB immunization after GAVI funding ends in 2008 to be initiated. The government should consider applying to GAVI for pentavalent vaccine.
- Standardize guidelines for HepB immunization, including for the birth dose.
- Consider EPI survey to validate coverage, especially birth dose coverage.
- The system for AEFI surveillance should be strengthened and communication efforts should be enhanced so that misconceptions among providers and the public regarding AEFIs are reduced.
- Sero-surveys of children for HBsAg should be considered in the future to document the impact of Hepatitis B.
- The cMYP and 2006 annual progress report to GAVI should be completed.
- Improve vaccine management through a reduction of wastage: all vaccines should have a VVM; change EPI service delivery strategy to more fixed site delivery; evaluate the use of different vial size in relation to wastage and cost; fully implement the multi-dose vial policy; expand cold chain to health-centre level.
- Improve planning and management at all levels including financial management.
- Develop a transparent and efficient financial management system. Conduct studies on costs, trend analyses and projections on a regular basis and adjust the programme accordingly.
- Improve coverage by introducing the RED elements, provide refresher training of health staff in EPI, include mobile strategies as well as integrate other services with immunization activities (Sustainable Outreach Services).
- Long-term vaccine savings could be achievable after certification of global polio eradication. Savings could be then invested into either other vaccines or injection supplies.
- Vaccine self-sufficiency initiative (HepB vaccine production).
Synopsis of the recommendations

Immunization service delivery and coverage

1. The immediate priority in improving the immunization services is to identify
the areas and the numbers of children to be served rather than fixing the
.denominator. The following could be the critical immediate steps to improve
immunization coverage:

a. Identify the townships/parts of the townships that can be reached by
fixed/outreach/mobile clinics/crash programmes.

b. Motivate midwives to develop rapport with all ANMs and traditional birth
attendants to identify pregnant mothers.

c. Follow up the pregnancies and include all births in the immunization
register and follow the infants until they are fully immunized.

d. Standardize the reporting system to obtain information and monitor the
number of children immunized every month.

2. To reach every child it is necessary to:

a. Develop realistic micro-plans from the subcentre level up, considering
local needs that include sustainable mobile clinics, outreach clinics and
.crash programmes according to the geographical extent of the area and
the population size.

b. Inform the communities well in advance about the date and timing of
the clinics.

c. Involve the local authorities, NGOs and communities to mobilize children
and pregnant women for immunization.

d. Collaborate with the private sector and NGOs to reach all communities.
3. On a long-term basis, to identify a standard method for population estimates and percentage of under-one-year children, services of expert demographers and statisticians need to be obtained to identify methods to conduct yearly systematic headcounts, to accommodate migrant populations in estimates and to conduct surveys to find age distribution of population etc.

4. Midwives require adequate resources and essential support like transport allowance to go to clinics, delivery of vaccines to closer points (e.g. to RHC) and supply of adequate numbers of essential forms and charts etc.

**Supervision**

5. To ensure supportive supervision, supervisors at all levels should be provided resources for mobility. They should be motivated to use existing supervisory check lists and use data to initiate early action.

**AEFI management**

6. A national meeting could be organized to understand the realities of AEFI management with the participation of policy-makers, AEFI committee members, academics, and national and state/region managers. The expected outcome of this meeting would be developing a standard policy document/national guideline addressing all current concerns and a simple information note to midwives and other basic health workers.

7. There is a need for capacity-building of state/regional staff for AEFI management.

**Training**

8. Ensure ongoing RED training is provided to all EPI staff up to midwives and follow up to motivate that they practise what they learned in micro-planning, implementation of the micro-plans and monitoring.
Vaccine management

9. Keep safety vaccine stocks for three months in subdepots and at least one month’s supply in townships where electric power can be ensured for eight hours a day or where there are effective solar refrigerators. This would enable the vaccines to be provided systematically according to micro-plans and to keep diluents in the refrigerator for 24 hours before the sessions.

Advocacy and communications

10. Develop a comprehensive communication strategy that includes closer partnership with local authorities and NGOs in all areas; inform the public about the date and time of immunization clinics and update IEC materials for immunization.

Surveillance

11. Review disease surveillance indicators periodically to identify silent areas, reasons for underreporting, and address the issues.

12. Sensitize all reporting units and raise awareness among staff about the importance of reporting VPDs, including how to do it correctly and consistently.

13. Strengthen case-based measles surveillance.
This important document presents an overview of the comprehensive Multi Year Plan (cMYP) for the Expanded Programme on Immunization (EPI) in the Republic of the Union of Myanmar, covering the period 2012-2016. This five-year plan is a follow-up plan to the previous cMYP for the period 2007-2011.

Important features of the new cMYP are the roll-out and implementation of the Reaching Every Community (REC) strategy in hard-to-reach areas; plans to introduce two new vaccines in 2012 - Haemophilus influenzae b (Hib) vaccine as pentavalent preparation and measles second dose; introduction of school-based immunization for tetanus and diphtheria (Td) in a phased manner in 2014; sustaining Maternal and Neonatal tetanus elimination status; strengthening of polio eradication strategies; progress towards measles elimination goals and activities for effective vaccine management and cold chain improvement based on recent assessment.

The cMYP consists of five objectives and 15 strategies which will be achieved by key activities and sub-activities for each respective strategy. These activities cover all major immunization system components: service delivery, vaccine supply, quality and logistics; advocacy and communication; surveillance and monitoring and programme management.

cMYP will form the basis for the development of annual plans for EPI and VDP surveillance programme of Department of Health in collaboration with WHO, UNICEF and GAVI.