# CAMBODIA
# National Immunization Program
# Strategic Plan
# 2016-2020

**National Immunization Program**
**National Maternal and Child Health Center**
**Ministry of Health**

**Phnom Penh, 2016**

**KINGDOM OF CAMBODIA**
**NATION RELIGION KING**

**Ministry of Health**

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# FOREWORD

The National Immunization Program, Ministry of Health, Cambodia is established in 1986 and has been working closely with partners including WHO, UNICEF and Gavi to extend both the reach and range of immunization in the country. Notable successes have been the eradication of polio, elimination of measles and MNT, and increased immunization for the children and pregnant mothers.

This is the third Multi Year Strategic Plan for the National Immunization Program in Cambodia, and covers the period 2016 to 2020. This plan supports the third Health Sector Strategic Plan 2016-2020 of the Ministry of Health and will ensure an effective and coordinated response to improve health for all Cambodians by reducing the incidence of vaccine preventable diseases. The plan also supports regional targets for immunization set by WHO and Sustainable Development Goal No. 3 on health.

The goal of the program is to ensure healthy lives and promote the well-being of all Cambodians by controlling, eliminating or eradicating all vaccine preventable diseases targeted by the National Immunization Program.

This Strategic Plan for the National Immunization Program in Cambodia has been prepared in line with WHO's guidelines on multi-year planning and has been jointly reviewed by the National Immunization Program management team and WHO and UNICEF in country.

The structure of the plan aligns with support from Gavi and other partners, and provides a clear set of outcomes that can be assessed in both mid-term and final reviews.

The Ministry of Health takes the opportunity to acknowledge WHO for technical and financial support for developing this comprehensive Strategic Plan.

*Phnom Penh, ...1..6.../May/ 2016*

Prof. ENG HUOT
SECRETARY OF STATE

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# LIST OF ABBREVIATIONS

| | |
|---|---|
| ABP | Annual Budget Plan |
| AIDS | Acquired Immune Deficiency Syndrome |
| AOP | Annual Operating Plan |
| APR | Annual Progress Report |
| BCG | Bacille Calmette-Guérin |
| BSP | Budget Strategic Plan |
| CDHS | Cambodia Demographic and Health Survey |
| CMS | Central Medical Stores |
| CSO | Civil Society Organization |
| DBF | Department of Budget and Finance |
| DPHI | Department of Planning and Health Information |
| DTP | Diphtheria-Tetanus-Pertussis |
| EPI | Expanded Program on Immunization |
| EVM | Effective Vaccine Management |
| Gavi | The Global Vaccine Alliance |
| GVAP | Global Vaccine Action Plan 2011-2020 |
| HC | Health Center |
| HCMC | Health Center Management Committee |
| HEF | Health Equity Fund |
| HIV | Human Immunodeficiency Virus |
| HMIS | Health Management Information System |
| ICT | Information and Communications Technology |
| MEF | Ministry of Economy and Finance |
| MOH | Ministry of Health |
| NGO | Non-government Organization |
| NIP | National Immunization Program |
| NIPH | National Institute of Public Health |
| OD | Operational District |
| PHD | Provincial Health Department |
| PIP | Public Investment Program |
| RH | Referral Hospital |
| SDG | Sustainable Development Goal |
| SOA | Special Operating Agency |
| THE | Total Health Expenditure |
| TWGH | Technical Working Group for Health |
| UNICEF | United Nations Children's Fund |
| USD | United States Dollar |
| VHSG | Village Health Support Group |
| VPD | Vaccine Preventable Disease |
| WHO | World Health Organization |

# SUMMARY TABLE

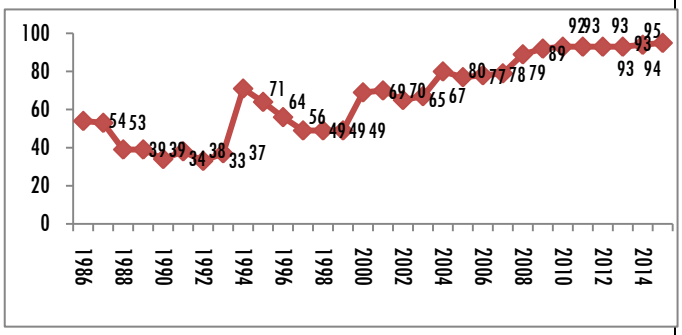
## Situation analysis summary 2008-2015

### Immunization achievements 2008-2015

- Eliminated Measles in March 2015.
- Eliminated Maternal and neonatal tetanus in June 2015.
- Maintaining Polio free status since 2000.
- 89% of new mothers received tetanus toxoid immunization.
- In 2014 under-5 child mortality rate was 35/1,000, down from 54/1,000 in 2010.

### Immunization coverage

**MCV1 immunization coverage 1986-2015**




### Immunization systems analysis

***Strengths***

- Effective outreach planning and implementation.
- Strong cold chain management systems in place.
- Technical quality of surveillance is improving.
- Good quality micro planning process at local level.

***Weaknesses***

- Inadequate coverage of high risk communities.
- Much of the supply chain equipment needs replacement.
- Weak community awareness and demand.
- Surveillance under-resourced.

### Health system constraints

- Immunization is given a low priority in health system strategic planning, and is seen solely as an adjunct to child health services.
- MOH innovations in internal contracting and performance management have not yet been applied to the immunization program.
- A sustainable financing strategy for the health system overall remains a work in progress.
- Recent government changes in payment for outreach work and staff salaries have required a re-working of budgets across the ministry and decreased the level of some outreach activities.
- Cooperation with, and regulation of, the private sector remain weak, despite private providers playing a major role in health service delivery.

### Vaccine-preventable disease incidence

| Indicator | 2008 | 2015 |
|---|---|---|
| AFP (suspected) | 77 | 84 |
| Measles cases (lab) | 1,765 | 0 |
| Rubella cases (lab) | 491 | 18 |
| Neonatal tetanus | 34 | 10 |
| Diphtheria (lab) | 7 | 0 |
| Pertussis (lab) | 1,212 | 10 |

### Disease control strengths/weaknesses

***Strengths***

- Surveillance system operates at all levels
- Improved cooperation with hospitals in active surveillance
- Quality of case investigations has been improving

***Weaknesses***

- Low report of neonatal deaths for detection of neonatal tetanus
- Transport of specimens sometimes delayed
- Budget not always available for investigation and supervision at lowest levels
- Incentive based surveillance system

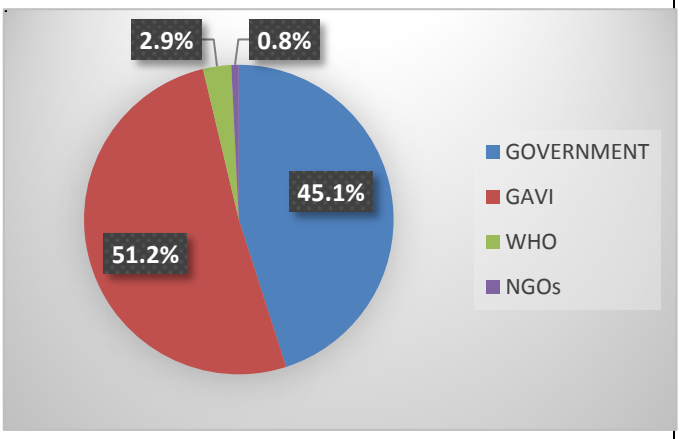
## Baseline costing profile

| Baseline indicator | 2014 |
|---|---|
| Total EPI expenditure | $11,449,526 |
| Campaigns | 0 |
| Routine immunization | $9,285,918 |
| Cost per capita | $33.60 |
| Cost per child DPT3 | $2.48 |
| % vaccines & supplies | 47.7 |
| % national funding | 45.1 |
| % government health expenditure | 0.3 |
| % GDP | 7.5 |

***Notes***

- *Cost per capita and cost per child figures both use the DPT3 vaccinated population (340,763 children) as the denominator*
- *The % GDP figure is for 2013*

## Baseline financing profile




**2014 Budget. Total: USD 11,449,526**

- *The government contribution is made in Khmer Riel. Conversion rate USD 1 = KHR 4,000*

## National immunization priorities

1. Increasing fully vaccinated children age 12-23 months of age.
2. Reducing the number of communities in the high risk category.
3. Improving community demand for immunization and raising attendance at fixed site immunizations.
4. Deepening the quality of surveillance systems.
5. Increasing the cost-effectiveness of cold chain logistics.
6. Improving management efficiency through broader computerization and skills development.

## National immunization goal and objectives 2016-2020

**Goal**: Ensure healthy lives and promote the well-being of all Cambodians by controlling, eliminating or eradicating all vaccine preventable diseases targeted by the National Immunization Program.

**Objectives:**

1. *Service Delivery* – Increase immunization coverage nationwide, especially by reducing the number of high risk communities and ensuring that geographic, and wealth disparities in coverage are minimized.
2. *Cold chain* – Strengthen the immunization supply system by implementing recommended activities in EVM improvement plans.
3. *Community awareness and demand* – Increase community awareness of, and demand for, immunization.
4. *Surveillance* – Strengthen the quality of surveillance of all vaccine-preventable diseases, involving all key stakeholders.
5. *Management capacity* – Strengthen management capacity at all levels to support the immunization program.

**Disease control targets for 2020**

| Indicator | 2014 | 2020 |
|---|---|---|
| DPT 3 coverage (%) | 83.7 | 95 |
| % gap high/low quintiles DPT 3 | 24.6 | 18 |
| Measles cases per million | 0 | 0 |
| Hepatitis B sero-prevalence <5 | 0.33% to 3.45%* | <1% |
| Neonatal tetanus cases (per 1,000 live births per OD per year) | 14 | <1 |
| % facilities function cold chain | 100 | 100 |
| Immunization law | No | Yes |

* *Survey of 3 provinces in 2013*

**Priority national program strategies**

- Specialized strategy to extend coverage in high risk communities using micro planning adapted to local conditions.
- Alignment of cold chain and logistics planning with EVM assessment results.
- Improved coordination with VHSG and NGOs to increase effectiveness of outreach campaigns and attendance at fixed site immunizations.
- Collaboration with private sector to improve quality of surveillance.
- Focus on sustainability in planning and budgeting.

**Partnerships and sustainability strategy**

- Participation in Technical Working Group for Health to coordinate with other MOH units and donor partners.
- Collaboration with the private sectors to improve the quality of disease surveillance and timeliness of responses to outbreaks.
- Working with NGOs to improve community awareness and demand for immunization.
- Technical cooperation with WHO and UNICEF.

**Health and development impacts**

- Reduce neonatal and child mortality by increasing full vaccinated children.
- Contribute to poverty reduction by reducing geographic and wealth inequities in access to immunization.
- Contribute to economic growth by prevention of diseases that weaken child, adolescent and adult health and prevent people participating fully in economic activities.

**Costing and finance projections 2016-2020 (USD)**

| | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| Total required | 11,949,741 | 8,183,075 | 8,387,241 | 8,617,033 | 8,843,724 |
| Cost per capita | 17.75 | 12.43 | 12.93 | 13.44 | 13.97 |

*All funding is secured for 2016. Projections for subsequent years are based on current stated commitments from government, WHO and UNICEF. Gavi commitments for all years are secured from Gavi HSS and Gavi vaccine introduction grants. There are no anticipated funding gaps. A detailed budget is shown in Annex 2.*

# EXECUTIVE SUMMARY

**Health system overview**– the Ministry of Health (MOH) oversees the work of 25 provincial health departments (PHDs), 92 Operational Districts (ODs), 1,141 health centers (HCs) and 81 health posts. In 2015 it also licensed and supervised the work of 2,156 medical facilities in the private sector. In 2012, total health spending was USD52 per capita, of which 24% came from government spending, 15% from development partners and 61% from out-of-pocket spending. Poor households in most locations were able to access free medical services using Health Equity Funds and coverage of these funds will be universal by 2020. MOH has prepared the Health Strategic Plan 2016-2020 and this puts a strong emphasis on improving service quality. The National Immunization Program (NIP) sits under the National Center for Maternal and Child Health and implements a mix of fixed site and outreach immunization campaigns.

At the end of 2015 there was 20,954 staff in the public health system, with all facilities having at least one midwife. The Health Management Information System (HMIS) is managed by the Department of Planning & Health Information (DPHI) in MOH and this is used for monitoring, evaluation and annual priority setting and planning. At HC level, management is supported by Health Center Management Committees including community and local authority representatives, and at village level there are Village Health Support Groups who liaise with communities on health issues including immunization rounds.MOH annual budgets are approved by government and funds are released by the Ministry of Economy and Finance (MEF), usually in January-February of the current financial (calendar) year.

**National Immunization Program** – the program began in 1986 and achieved national coverage for basic vaccines in 1989. Cambodia has been free of polio cases since 2000, and free of measles since 2015. The program currently uses eleven vaccines, with another two to be introduced in 2016-2017.

**Achievements and lessons**– major achievements have been:

- ☆ Elimination of measles in 2015
- ☆ Elimination of maternal and neonatal tetanus in 2015
- ☆ Maintenance of polio-free status since 2000
- ☆ Under-5 mortality rate reduced to 35/1,000 live births in 2014, from 54/1,000 in 2010.

## Key lessons learned from the past multi-year plan (2008 to 2015) were:

- Targeting high risk communities is costly and resource intensive, but is essential in order to extend coverage and control infectious diseases. However, it needs to be matched with vigilance in sustaining coverage levels in other communities;
- Micro planning at local level, taking account of local conditions and using local expertise, is highly effective in increasing immunization coverage;
- Detailed and up to date databases are a highly successful management tool for vaccine supplies and cold chain logistics;
- A good quality communications strategy, and an implementation plan for that strategy, are necessary for increasing community demand for immunization;
- Surveillance is resource intensive so there is a need to look at broader partnerships outside the program, especially with the private sector;
- Rapid changes in the structure and responsibilities of the program demand constant upgrading of management skills and more focus on cost-effective planning and implementation.

**Demographic challenges** – low levels of education remain a challenge for raising community awareness and increasing demand for immunization. Women and those in rural areas tend to have lower levels of both literacy and formal education. Populations with low immunization coverage tend to be in more remote locations or unregistered villages, have high numbers of ethnic minority households or be transient groups, often in urban locations. There has been a substantial decrease in overall poverty in the past decade, but many households remain vulnerable and catastrophic health expenditure is a major risk factor. There has been a substantial drop in child mortality, to which immunization has contributed, but momentum needs to be sustained. Major disparities in immunization coverage remain, due to geographic location, wealth and maternal education levels.

**Service delivery challenges** – increasing immunization coverage will demand a strong push to reach 'high risk' communities (those with <80% full vaccination of children at the time of yellow card checking). A policy to reach these communities using local micro planning has been developed and local action plans are revised regularly. Cold chain equipment is ageing and in need of better repairs and maintenance. Computerized management of the system needs to be strengthened. Community engagement and mobilization remains weak and too reliant on dated methods. There need to be more innovative approaches and greater involvement of NGOs. Surveillance system comprised of both routine and sentinel, but needs more resourcing. There is heavy reliance on WHO technical support. Program management needs to strengthen planning and analytical skills, improve cooperation with other units in MOH and in the private sector, and to upgrade the skills of central NIP staff as the complexity and reach of the program increase.

**Policy environment**– the Sustainable Development Goals (SDGs) will be the international guiding development targets from 2016 and NIP activities will support SDG 3 on health, especially four of the targets under that SDG and three of its aspirational targets. The NIP plan is also consistent with the goals and strategic objectives of the WHO Global Vaccine Action Plan 2011-2020 and with the WHO regional framework agreed in 2014 which sets eight specific goals. The NIP plan will support MOH's new Health Strategic Plan 2016-2020, especially objectives under Goals 1, 2 and 5. NIP's National Policy on Immunization (2012) is being updated in line with this plan and will be finalized in early 2016. A new communications policy will be finalized in mid-2016.

**Goal, objectives and outcomes** – the goal of this plan is: *to ensure healthy lives and promote the well-being of all Cambodians by controlling, eliminating or eradicating all vaccine preventable diseases targeted by the National Immunization Program*.

**The plan has 5 objectives:**

1. **Service Delivery –** Increase immunization coverage nationwide, especially by reducing the number of high risk communities and ensuring that geographic and wealth disparities in coverage are minimized.
2. **Cold chain –** Strengthen the immunization supply system by implementing recommended activities in EVM improvement plans.
3. **Community awareness and demand –** Increase community awareness of, and demand for, immunization.
4. **Surveillance –**Strengthen the quality of surveillance of all vaccine-preventable diseases, involving all key stakeholders.
5. **Management capacity –** Strengthen management capacity at all levels to support the immunization program.

Section 4 details the objectives and expected outcomes, and they are summarized in a table in Annex 1.

**Management systems** – there are thirty NIP staff at national level and NIP managers at both PHD and OD levels in all provinces. Immunization activities at the HC level are overseen by the HC chief. While there are regular phone and email communications between EPI staff, a large amount of information is still paper based and under this plan there will be a shift to greater computerization of the system. Quality management is ensured through supervision visits that work on a cascade basis using standard checklists that include a number of service quality items. Reporting is both monthly and quarterly and uses standard templates. Annual plans are subject to mid-term reviews where adjustments to activities and budgets can be made. Expenditure tracking is quarterly. All major NIP plans, policy documents, reviews and other strategic documents are submitted to the Technical Working Group for Health (TWGH) for comments and approval.

**Monitoring and evaluation** – immunization data from the 25 provinces goes to DPHI and aggregated data is sent to NIP for analysis and identification of issues. Disaggregated data is available on demand. NIP conducts quarterly review meeting with provincial managers to track issues and monitor progress on coverage. Surveillance sheets go to NIP and responses to outbreaks and other events are planned in cooperation with local managers. Annual joint reviews involving NIP, WHO and UNICEF result in detailed reports that feed into planning. Effective Vaccine Management (EVM) assessments are done every three years and these result in EVM improvement plans which are then incorporated into NIP annual plans. This five year plan will have a mid-term review in 2018 and a final review in 2020. The Cambodia Demographic and Health Survey, which includes some key immunization indicators, was undertaken in 2014 and the next one will take place in 2019. Key indicators for this five year plan are shown in Table 3, Section 5.

**Budget and financing** – the major budget sources are the government and Gavi. Small amounts are contributed by WHO and UNICEF, but most of their support is in the provision of technical assistance. Budget requests go up to MOH and then to the Ministry of Economy & Finance, which approves allocations at the start of the calendar year. Budgeting in this plan aligns with MOH's Health Financing Policy, prepared in 2014. Health sector financial data is presented in annual Health Finance Reports and immunization items are included in these. Progress towards greater financial sustainability will emphasize evidence-based resource allocation and the progressive shift of high risk communities from resource intensive outreach campaigns to the routine immunization program. A detailed budget showing allocations by Outcome and funding source is in Annex 2.

# 1. BACKGROUND

## 1.1. Health system overview

The public health system is overseen by the Ministry of Health (MOH) and operates at four levels: national, provincial, operational district and health center. MOH supervises the work of 25 provincial health departments (PHDs), 92 Operational Districts (ODs), 1,141 health centers (HCs) and 81 health posts[1]. ODs can comprise more than one government administrative district. HCs serve an average of 10-12 villages, normally within one administrative commune. There are 99 referral hospitals (RHs) at district and provincial levels, classified into 3 categories depending on the level of service provided. There are also 8 national level hospitals. In the private sector, there were 2,156 licensed medical facilities in 2015, mostly small clinics, but including 8 private hospitals and 47 polyclinics. All private facilities that had applied for registration were licensed by MOH.

In 2012, total health spending was USD52 per capita, of which 24% came from government spending, 15% from development partners and 61% from out-of-pocket spending[2]. All health facilities charge fees for service (except for exempted services such as immunization) and public health facilities must display a list of fees. At public facilities, Health Equity Funds (HEFs) are operated by non-government organizations (NGOs) or civil society organizations (CSOs) under contract to MOH and pay the health service fees for poor households identified by the government's ID Poor scheme, administered by the Ministry of Planning. In 2013, 68 hospitals and 516 HCs had HEFs[3]. The goal is to have universal HEF coverage by 2020. HEFs have led to a general increase in the use of health facilities, especially by the poor, allowing health staff to better monitor the immunization histories of children from those households.

MOH's Health Strategic Plan 2016-2020 has a strong emphasis on service quality improvement. Service quality is monitored through monthly integrated supervision visits that are implemented on a cascade basis: MOH to PHD, PHD to OD, OD to HCs. Supervision checklists used by health staff on these visits include a number of items focused on service quality.

Immunization is managed by the National Immunization Program (NIP) and most vaccinations are done by staff at HC level. There is both fixed site and outreach immunization. Many communities are located far from HCs, and access can be limited in many rural areas during the wet season. Outreach immunization is likely to remain an integral part of the system in the medium term. NIP also provides some vaccines to a small number of approved private sector facilities so they can carry out immunizations, but all facilities must use the government registration card and provide data to NIP on a regular basis.

At the end of 2015 there were 20,954 staff employed in the public health system[4]. These comprised 2,346 medical doctors and 863 medical assistants, 5,745 secondary nurses and 3,173 primary nurses, 3,130 secondary midwives and 2,282 primary midwives, 525 pharmacists, 250 dentists, 506 laboratory technicians and 2,134 other staff. All health facilities now have at least one midwife.

The Health Workforce Development Plan 2006-2015 provided a framework for staff training and annual reports on progress used indicators from this plan. Annual training assessments and plans are prepared

[1] MOH (2015) *Health Sector Progress in 2016*
[2] MOH (2013) *Annual Health Financing Report 2012* Department of Health Economics & Financing, DPHI, March.
[3] Ibid.
[4] All figures in this paragraph are from MOH (2014) *Health Sector Progress in 2016*

at PHD and national levels for inclusion in Annual Operating Plans (AOPs). All prior staff salary supplement and incentive schemes for the sector ended in June 2012 after a government decree. The only exception is the midwifery incentive payment, which gives USD15 to each midwife who has a mother deliver a live baby at a HC or RH. A system of Special Operating Agencies (SOAs) was established using performance based contracts to allow health staff to retain a portion of user fee income if specific service targets were met.Currently 36 SOAs operate on this basis, covering 31 referral hospitals and 387 HCs, but immunization targets are not included in the standard performance contracts

Procurement of vaccines is done through UNICEF, which purchases via the procurement division in Copenhagen. Vaccines imported into Cambodia are initially stored in the Central Medical Stores (CMS) in the capital, Phnom Penh, and distribution is managed by CMS on a quarterly basis through a network of provincial stores. CMS does not do any interim supply between the quarterly distributions, but if units in the provinces are running low on stocks, NIP can alert CMS and those units can come to CMS to get an interim supply.

Procurement of equipment is managed by NIP and is based on annual procurement plans from PHD level and quarterly requests. NIP manages the distribution of equipment.

The Department of Planning and Health Information (DPHI) in MOH manages the health management information system (HMIS) and also trains staff at national, provincial and OD levels in data input, management and analysis. It has designated HMIS officers at each of these levels. Data input at HC level is in handwritten registers. At OD level paper-based data from HC level is aggregated and entered into a computer database and a report sent to PHD level, from where aggregated provincial data is sent to MOH. Greater computerization of the system is under way.

DPHI produces detailed statistical tables to help inform the Annual Operational Plan (AOP) process, and these are used to help set priorities for budget allocation each year, both by MOH and donor partners. Generally data analysis skills are weak at OD and PHD levels, and there is a focus on reporting data to national level rather than using data as a management tool. There are few linkages between the HMIS and databases held in other ministries, especially in terms of denominating population figures and integrating data from the ID Poor scheme.

DPHI has a data quality assessment improvement plan which looks at strengthening data quality at lower levels and its use in AOP preparation, improving data analysis and its use in management, and introducing an electronic patient management record system.

Health Center Management Committees (HCMCs) are established at each HC and are supposed to meet monthly to oversee the work of HCs. They include community representatives and staff from Commune Councils. However, in practice their meetings are irregular. The National Committee for Decentralization and Deconcentration in the Ministry of Interior began a program in 2015 of using community scorecards for all local government services, including services at HCs and RHs, and this will aim to strengthen input from HCMCs. The program uses both annual and interim feedback workshops to hold government staff accountable for service quality.

A significant number of NGOs are involved in health promotion activities, training of health staff and village health volunteers, community mobilization for preventive health and nutrition promotion. Some NGOs are directly involved in service delivery, e.g. for eye care and provision of short- and long-term contraceptive methods. None deliver immunization services. There are no organized incentive schemes for community organizations, but many NGOs pay perdiem costs or gratuities to participants. NGOs have been involved in demand generation activities focused on maternal and child health, nutrition and reproductive health services.

At village level, Village Health Support Groups (VHSG) operate on a volunteer basis. These normally consist of one female and one male volunteer, and they notify households about health campaigns, do awareness raising and support outreach activities by health staff. They also collect some data which they report monthly to HCMCs. At this level there are also Village Malaria Volunteers, Tuberculosis Watchers and HIV-AIDS care monitors that report to various line programs, and in practice there is often overlap between these personnel and the VHSG.

MOH annual budgets are approved by government and funds are released by the Ministry of Economy and Finance (MEF), usually in January-February of the financial year. MOH releases funds to its various units and PHDs on the basis of the provincial AOPs, usually approved in December-January. The Department of Budget and Finance (DBF) in MOH manages the disbursement of these funds. MEF also releases funds directly to provincial governors for spending on health initiatives but MOH has no role in the allocation of these funds.

## 1.2. The National Immunization Program

The National Immunization Program (NIP) arose when the government began providing the six basic Expanded Program on Immunization (EPI) vaccines. Initial coverage was limited in some areas of the country due to internal conflicts. With support from partners, Cambodia officially launched the national EPI in October 1986. By the end of 1988, EPI activity had been expanded to all provinces and in February 1989, the program began immunizing pregnant women against tetanus. Cambodia initiated polio eradication activities in 1994 and the last confirmed case of poliomyelitis was in 19 March 1997. The country was certified by WHO as polio-free in November 2000.

Measles elimination activities began with a nationwide measles campaign in 2000. Subsequent measles campaigns were conducted in 2007 and 2011, followed by a measles/rubella vaccine campaign in 2013. Cambodia has been free of measles since March 2015.

Vaccines currently used by the NIP are set out in Table 1. In 2016, NIP plans to introduce vaccines for the prevention of Japanese encephalitis and human papilloma virus. No other new vaccines are planned during the period covered by this five year plan.

**Table 1: Vaccines currently used by NIP**

| SN | Vaccine |
|---|---|
| 1 | BCG (Bacille Calmette-Guérin) |
| 2 | DTP-HepB-Hib (Diphtheria/Tetanus/Pertussis, Hepatitis B, Haemophilus Influenzae Type b) |
| 3 | OPV (Oral Polio Vaccine) |
| 4 | MR ( Measles-Rubella) |
| 5 | Hepatitis B |
| 6 | PCV (Pneumococcal Conjugate Vaccine) |
| 7 | IPV (Inactivated Polio Vaccine) |
| 8 | JE ( Japanese Encephalitis) |

# 2. SITUATION ANALYSIS

## 2.1. Achievements and lessons

NIP has made some impressive achievements under the previous plan, from 2008 to 2015. Measles was eliminated in 2015 after no confirmed cases since 2011. Maternal and neonatal tetanus was eliminated in 2015, with MOH receiving formal notification from WHO. The country also continued to maintain its polio-free status since 2000. 89% of new mothers received tetanus toxoid immunization by the end of 2014. These achievements made a contribution to Cambodia's substantial reduction of the under-5 year old mortality rate, which in 2014 was 35 per 1,000 live births, compared to 54 in 2010.

Table 2 shows achievements in 2014 compared to targets set in 2008 for the year 2015. This shows that most targets were exceeded by a significant margin, though measles coverage and fully vaccinated children aged 12-23 months old, did not reach the expected targets despite earlier progress.

**Table 2: Vaccine coverage – 2008 targets versus 2015 actual**

| Vaccine | 2015 target set in 2008 (%) | 2014/2015 coverage (%) | Source |
|---|---|---|---|
| Hep B birth dose (<24hrs) | 65 | 76 | NIP[5] |
| BCG | 95 | 95 | NIP |
| DPT-HepB –Hib3 | 90 | 98 | NIP |
| OPV 3 | 90 | 98 | NIP |
| MR1 | 90 | 79 | CDHS 2014[6] |
| Fully vaccinated | 80 | 73 | CDHS 2014 |
| NT protected at birth | 80 | 88.6 | CDHS 2014 |

NIP has expanded the coverage of immunization since 2008, but difficulties have been encountered in reaching high-risk communities which are located in remote areas and those with transient or unregistered populations. In response, NIP developed a strategy to reach these communities, along with guidelines for preparing and implementing local micro plans. This strategy will be further strengthened and adapted during the period of this five year plan in order to reduce the number of high-risk communities.

Five new vaccines have successfully been introduced under the previous plan (see Table 1 in Section 1.2 above) and staff have been trained in their management and use. These vaccines have

[5]Annual coverage 2015, National Immunization Program.
[6]National Institute of Statistics (2015) *Cambodia Demographic and Health Survey 2014*, *Key Indicators Report* Ministry of Health, Phnom Penh.

quickly been integrated into the program. In the early stage of this five year plan two new vaccines will be introduced, but the focus will mainly be on consolidation and extending coverage.

NIP has been established databases for managing the purchase and delivery of cold chain equipment at all levels. These databases have enabled quick identification of equipment reaching the end of its serviceable life.

A new communications strategy is being developed and is expected to be completed by mid-2016. In conjunction with research by UNICEF in 2015 that mapped NGOs and CSOs working in high risk communities, this will form the basis of a stronger community engagement strategy in order to increase demand for immunization and attendance at fixed site immunizations.

The technical quality of surveillance has improved considerably, though resourcing of this key function needs to be increased. Both fixed site and sentinel surveillance systems have operated effectively and have allowed quick responses to reports of adverse events and disease outbreaks.

Management skills have been improved at all levels through training and supervision visits, but the use of data in setting priorities in planning and budgeting needs further strengthening, especially at sub-national level.

Key lessons learned from the past multi-year plan were:

- Targeting high risk communities is costly and resource intensive, but is essential in order to extend coverage and control infectious diseases. However, it needs to be matched with vigilance in sustaining coverage levels in other communities.
- Micro planning at local level, taking account of local conditions and using local expertise, is highly effective in extending immunization coverage.
- Detailed and up to date databases are a highly successful management tool for vaccine supplies and cold chain logistics.
- A good quality communications strategy, and an implementation plan for that strategy, are necessary for increasing community demand for immunization.
- Surveillance is resource intensive so there is a need to look at broader partnerships outside the program, especially with the private sector.
- Rapid changes in the structure and responsibilities of the program demand constant upgrading of management skills and more focus on cost-effective planning and implementation.

## 2.2. Demographic challenges

Cambodia has a population of 14,676,591 (51.5% female, 48.5% male)[7]. There are 25 provinces plus the capital municipality of Phnom Penh. Nationwide there are 14,119 villages. Most of the population (79%) lives in rural areas. The annual population growth rate is 1.46%. The population is relatively young, with a median age of 24.5 years. Those under 15 years of age comprise 29.4% of the population, while those aged 65 or more account for only 5% of the total. Adult literacy (for those aged 15 years or more) is 79.7% (86.4% for males, 73.6% for females) and is lower in rural areas (76.5% overall compared to 90.3% in urban areas). ***This presents a challenge for raising awareness and knowledge about the benefits of immunization, especially when relying on written materials***. The migrating population, where people have changed their residence at least once in the past year, is 29% nationally, but significantly higher (49%) in urban areas. This again

[7]National Institute of Statistics (2013) *Cambodia Inter-Censal Population Survey 2014*, *Final Report* Ministry of Planning, Phnom Penh, November. All data in this paragraph is from this report.

raises difficulties for the immunization program as ***mobile populations are hard to reach***and it is currently not possible to track their immunization histories over time.

***The country has made great strides in poverty reduction***, with the national rate in 2011 at 21%, down from 50% in 2007[8]. ***However, many people remain vulnerable***, with the World Bank estimating that an increase of just 1,200 riel (approximately USD 30 cents) per day in expenditure would double the poverty rate. Catastrophic health expenditures are a common cause of households falling back into poverty. The vast majority of the poor (91%) live in rural areas[9] and many have problems accessing health care because they reside in remote or hard to access locations. While 27% of households are headed by women[10], the poverty rate in these households does not differ greatly from that of other households[11].

The fertility rate was 2.7 per woman in 2014[12], down from 4.0 in 2000. However, 12% of women who had a new baby in 2014 were aged between 15 and 19 years. ***Formal education levels among women remain low*** and getting messages to this population about maternal and infant immunization presents a major issue for the health system and for immunization staff in particular.

***Very strong progress has been made in reducing child deaths***. The infant (less than 1 year old) mortality rate is 28 per 1,000 live births, a major reduction from 95/1,000 in 2000. Child mortality (for those aged 1 to 5 years) is 7/1,000, down from 33/1,000 in 2000. That means that the overall mortality rate for children under 5 years of age is now 35/1,000, compared to 124/1,000 in 2000[13]. Immunization has made an important contribution to these improvements: 89% of new mothers received a tetanus toxoid injection (up from 85% in 2010) and 95% of pregnant women attended at least one antenatal care consultation, where recommendations on maternal and newborn immunization are given[14].

***However, geographic disparities remain a problem***. While the tetanus toxoid immunization rate overall is high, it is much lower in some provinces , especially in Mondulkiri and Ratanakiri, where the rate was only 72%[15]. Many people in these provinces live in remote villages and belong to ethnic minority groups with low literacy and education levels. Education was an important factor in tetanus toxoid immunization rates among pregnant women. The take-up rate for the vaccination was 97% for women with a post-secondary education, but 80% for those with no formal education. Similarly, the take-up rate for the highest wealth quintile was 94%, compared to 83% for the lowest quintile[16]. ***Addressing these disparities of location, education and wealth is a significant problem*** for the immunization program, but cannot be addressed in isolation from other systemic reforms in the health sector, and in those sectors concerned with education and poverty reduction.

[8]World Bank (2014) *Where Have All the Poor Gone? Cambodia Poverty Assessment 2013* World Bank, Washington, April, pp. 17-18.
[9]Ibid., p. 11.
[10] National Institute of Statistics (2013), op cit., p. iv.
[11]World Bank (2014), op cit., pp. 10, 21.
[12] National Institute of Statistics (2015) *Cambodia Demographic and Health Survey 2014*, *Key Indicators Report* Ministry of Health, Phnom Penh, February, p. 9.
[13]Ibid., pp. 16-17.
[14]Ibid., pp. 17-20.
[15]Ibid., p. 19.
[16] Ibid.

***In 2014, 73% of children aged 12-23 months of age were fully vaccinated*** in line with WHO recommendations. This was up from 67% in 2005, but a fall from the 79% coverage in 2010[17]. There were differences in the coverage of specific vaccines: while polio and tuberculosis[18] vaccine coverage were high at 90%, measles vaccination coverage was 79%. There was little difference between fully vaccinated coverage for girls and boys (73% and 74% respectively) but ***the rural-urban difference was high***, with 86% of urban children being fully immunized but only 71% in rural areas. ***There were large differences between provinces***, from a low of 44% of children being fully vaccinated in Mondulkiri and Ratanakiri, compared to 91% in Banteay Meanchey. The provinces with below average rates of fully vaccinated[19] covered a variety of settlement patterns and topography, so there was no standard pattern. Addressing the problem will require the immunization program to tailor its strategies to fit local conditions using a micro planning strategy.

Again, ***education and wealth factors had a major impact on rates of fullyvaccinated*** children. The rate for children of mothers with a post-secondary education was 92%, compared to 58% for mothers with no formal education. The rate of fully vaccinated children born to mothers in the highest wealth quintile was 91%, but only 61% among those in the lowest quintile[20]. The Ministry of Health is committed to improving equity of access to all health services and achieving this in the immunization program will be a vital factor in maintaining progress in maternal and child health.

## 2.3. Service delivery challenges

**Immunization coverage**– Despite strong progress in vaccination coverage as evidenced in the Cambodian Demographic and Health Surveys (CDHS) in 2000, 2005 and 2010, the latest CDHS in 2014 found that about 27% of children aged 12-23 months old were not fully vaccinated. NIP undertook an analysis of areas not fully covered and identified 1,832 'high-risk communities'. These have been entered into a database and a detailed strategy developed for getting children and women in those communities immunized. The high-risk groups fall into four categories: mobile workers and their families; ethnic minorities with different languages and belief systems from the Khmer majority; the urban poor and poor households within settled communities; and unofficial or remote settlements that are not recognized or recorded by local administrations. There is an urgent need to expand immunization in these groups. NIP has developed the Implementation Guidelines for High Risk Communities[21] and a database to track progress on extending immunization. Communities with <80% immunization coverage are categorized as high risk and the Guidelines set out a 5-step process for HC, OD and PHD staff to target these groups and provide catch-up immunization. Outcome monitoring is done at the measles-rubella 18-month vaccination when vaccination cards are checked.

A documentation of the high risk community strategy was conducted in 2015[22] and found that the strategy was working well but some challenges remained. More orientation of health staff on the implementation guidelines was needed, and the quality of micro plans for catch-up campaigns in these communities required strengthening in some areas such as budgeting and site selection. Micro planning at the HC level was found to be effective for rural communities and less costly, but

[17]Ibid., p. 20.
[18]BacilleCalmette-Guérin (BCG) vaccine.
[19]PreahVihear (56%), Stung Treng (56%), Kampong Cham (57%), Prey Veng (62%), Kandal (65%), Kratie (65%) and Kampong Speu (67%).
[20]National Institute of Statistics (2015), op cit., p. 20.
[21] NIP (2014) *Implementation guidelines for high risk communities* Ministry of Health, Phnom Penh.
[22]Bilous, J (2015) *Documentation of the High Risk Community Strategy for Immunization in Cambodia* UNICEF, Phnom Penh.

planning needed to take place at the OD level for urban areas. Catch-up/immunization outreach services were seen as appropriate, but required planning to begin at least three months before implementation. Cooperation with VHSG at village level was important to the success of campaigns. The review noted the difficulty of tracking immunization histories as there is still no national database or tracking system for immunization cards. The report also recommended that supervisors in NIP at national level should be responsible for specific groups of provinces to improve the quality of monitoring and tracking of the strategy.

**Cold chain management** – NIP maintains a detailed database of cold chain equipment nationwide, disaggregated by facility, equipment make and model, purchase date and type of electricity supply. The database includes an inventory of spare parts. The database shows that about two-thirds of equipment is now over ten years old and other equipment is not functional due to wear and tear. This undermines the integrity of the cold chain and puts potentially millions of dollars' worth of vaccines at risk. An Effective Vaccine Management (EVM) assessment was conducted in August 2015[23] and found that there had been improvements in temperature management and maintenance of cold rooms at national level, stock management at all levels of the system, the quality of purchased cold chain equipment, and storage capacity at all levels. The assessment noted the need for updated standard operating procedures, better structured training programs targeting specific categories of staff, a stronger repair and maintenance system, and better temperature monitoring at sub-national levels. An EVM improvement plan was published simultaneously and NIP will be using this to strengthen cold chain management. EVM assessments are normally conducted every three years and the improvement plans prepared after the assessments will be incorporated into NIP's annual planning process

**Community engagement and mobilization** – The 2014 CDHS[24] shows that 13% of all women and 6% of all men have received no formal education. The proportion rises significantly for those aged over forty-five. 47% of women and 42% of men have had up to six years of primary education. There are substantial differences in education figures by geographic location. Formal education levels are much lower in remote provinces and rural areas. The overall literacy rates were 70% for women and 83% for men in 2010. Again, literacy tends to be higher among younger cohorts, while those in more remote rural locations and poorer households tend to have much lower literacy levels[25]. This presents a challenge for raising community awareness about immunization. Low literacy means that campaigns have to rely more strongly on face-to-face communications and repeated outreach visits to instill key messages. The role of VHSG is important here, as written materials can be left with VHSG who then use them to communicate oral messages to target groups. There is also opportunity for increased cooperation with NGOs and CSOs in spreading awareness and key messages.

It is important that materials and communication methods use simple graphics and rely more strongly on oral messages. However, there is a need to improve the appeal and effectiveness of communication methods. Mass media communications through television and radio, which have extensive geographic coverage, are popular, but do not cover 'media dark' areas of the country. Low education and literacy levels provide fertile ground for rumors and misinformation about health practices generally and immunization in particular. NIP will therefore improve its capacity to respond to community concerns about unusual events such as disease outbreaks, adverse events following immunization and rumors about the safety of vaccines.

[23]MOH (2015) *Cambodia EVM Assessment* MOH & UNICEF, Phnom Penh, August.
[24]National Institute of Statistics (2015), op cit., pp. 11-13.
[25] National Institute of Statistics (2011) *Cambodia Demographic and Health Survey 2010* Ministry of Health, Phnom Penh, pp. 40-44. The 2014 CDHS results on this indicator are not yet published.

Fixed site immunizations account for about 60% of the total[26], so there is heavy reliance on outreach campaigns, which are more costly in terms of logistics and staff time. NIP will work more closely with VHSG, NGOs and CSOs in order to increase the number of immunizations taking place at fixed sites.

**Surveillance capacity** – NIP manages both sentinel sites and routine surveillance systems, and these have been effective in tracking disease outbreaks and providing information to plan responses. However, much of the technical advisory and management support on this aspect of the program comes from WHO. While NIP has the capacity to manage the distribution and collection of surveillance forms at field level, skills to aggregate and analyze the data, and to allocate resources on the basis of that analysis, require improvement. Under this plan NIP will upgrade the technical and management skills of staff at all levels in order to sustain the system in the longer term. The ability of NIP to be an active partner with WHO in the broader surveillance structure will also be improved as sustainability of the system is strengthened. Increased computerization of the system will also allow NIP at national level to receive and act on reports more quickly. There is substantial potential for private health service providers, who are geographically widespread, to play a pivotal role in disease surveillance. During the period of this five year plan, NIP will be increasing collaboration with the private sector in order to improve the quality and reach of the surveillance system.

**Program management skills** – The Joint Appraisal by NIP, Gavi, WHO and UNICEF conducted in 2014 noted some challenges in program management. These included insufficient capacity for planning and the use of data to inform planning, especially at sub-national levels. There were also insufficient staff and resources for outreach services, especially for service delivery in hard to reach communities, underlining the need to accelerate progress on fixed site immunizations. There was little engagement with NGOs and CSOs, despite the ability of these organizations to mobilize communities and to increase awareness and knowledge about immunization and its links to better health. The need to strengthen cooperation and coordination with other units in MOH was also noted as a systemic weakness.

Activities under this plan will improve management skills, and the use of routine and surveillance data to inform management and planning, particularly the allocation of human and material resources. Outreach immunization will remain an important part of the EPI for the foreseeable future so it is important that this is managed well and that outreach activities are demonstrably cost effective. This applies particularly to the strategy to reach high-risk communities which must be implemented successfully if national immunization targets are to be reached.

Coordination with other departments/programs in MOH will be improved in order to have more comprehensive reviews of management issues, financial flows and procurement, and to monitor progress against implementation and disbursement targets.

[26] Government of Cambodia (2015) *Annual Progress Report 2014*, *Submitted to Gavi* Phnom Penh, May.

# 3. POLICY ENVIRONMENT

In October 2015, ***the new Sustainable Development Goals*** (SDGs) were agreed by members of the United Nations. From the beginning of 2016 these will replace the Millennium Development Goals. The activities in this five-year plan will contribute to SDG 3: *Ensure healthy lives and promote well-being for all at all ages*.

The relevant targets under SDG 3 that will be supported by the immunization program are:

***3.1.*** *By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births;*

***3.2.*** *By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births;*

***3.3.*** *By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases; and*

***3.4.*** *Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.*

**The immunization program will also contribute to three of the aspirational targets under SDG 3:**

***3.a. Support the research and development of vaccines and medicines for the communicable and non-communicable diseases*** that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the Trade-Related Aspects of Intellectual Property Rights Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all;

***3.b. Substantially increase health financing and the recruitment***, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States; and

***3.c.Strengthen the capacity of all countries***, in particular developing countries, for early warning, risk reduction and management of national and global health risks.

In 2013, WHO published the Global Vaccine Action Plan 2011-2020 (GVAP). It contains five specific goals:

1. *Achieve a world free of poliomyelitis*
2. *Meet global and regional elimination targets*
3. *Meet vaccination coverage targets in every region, country and community*
4. *Develop and introduce new and improved vaccines and technologies*
5. *Exceed the Millennium Development Goal 4 target for reducing child mortality*

The plan also has six strategic objectives to guide implementation:

1. *All countries commit to immunization as a priority*
2. *Individuals and communities understand the value of vaccines and demand immunization as both their right and responsibility*
3. *The benefits of immunization are equitably extended to all people*
4. *Strong immunization systems are an integral part of a well-functioning health system*
5. *Immunization programs have sustainable access to predictable funding, quality supply and innovative technologies*

6. *Country, regional and global research and development innovations maximize the benefits of immunization*

***Cambodia is a Member State of WHO's Western Pacific Region, and in October 2014 a regional framework in line with GVAP was endorsed. It has 8 specific goals:***

1. ***Polio***– sustain eradication status
2. ***Measles*** *– sustain measles elimination status : at least 95% coverage of two doses of measles vaccine, and increase the sensitivity of case surveillance*
3. ***Hepatitis B*** *– less than 1% chronic prevalence in children under 5 years of age, and timely birth dose coverage*
4. ***Maternal and neonatal tetanus –****sustain* elimination status
5. ***Rubella –*** elimination
6. ***Japanese Encephalitis*** *– accelerated control through improved surveillance and campaigns for all those less than 15 years old*
7. ***New vaccines*** *– evidence-based introduction, taking into account the disease burden, cost effectiveness, operational issues, sustainability and local priorities*
8. ***Immunization coverage*** *– 95% national coverage, 90% district coverage for all vaccines in national program*

The NIP five-year plan will contribute to these global and regional goals set by WHO Member States. Specific contributions of objectives to each of these goals are set out in Section 4.

MOH has prepared the Health Sector Strategic Plan 2016-2020 in collaboration with various ministry departments and programs, donor and partners active in the health sector, NGOs and civil society organizations providing support to health services, and organizations representing private sector health service providers. The long term vision of the plan is: *All peoples in Cambodia have better health and wellbeing, thereby contributing to sustainable socio-economic development.*

The supporting mission statement is: *Effectively managing and leading the entire health sector to ensure that quality health services are geographically and financially accessible and socio-culturally accepted to all peoples in Cambodia.*

The plan sets out working principles of accountability, efficiency, quality, equity, professionalism, affordability and sustainability. There are 5 health development goals:

***Goal 1: Improve reproductive, maternal, newborn, infant and child health, and nutrition***

***Goal 2: Reduce morbidity and mortality caused by communicable diseases***

***Goal 3: Reduce morbidity and mortality caused by chronic non-communicable diseases***

***Goal 4: Reduce negative impact on health caused by major public health problems***

***Goal 5: Increase access to affordable quality health services without financial hardship by all Cambodians, especially the poor and vulnerable.***

Immunization will support Goal 1, and particularly Objective 1.3 under that goal: *Improve quality, accessibility and coverage of integrated management of childhood illness, including immunization and management of pneumonia and diarrhea diseases.*

The immunization program will also contribute to Objective 2.4 under Goal 2: *Reduce morbidity and mortality of emerging and re-emerging infectious diseases and zoonotic diseases.*

## Under Goal 5 the program will contribute to the following Objectives:

**5.1.** ***Improve delivery of quality health services*** in both public and private facilities with increased service utilization and client satisfaction.

**5.2.** ***Ensure adequate number of competent, motivated, equitably*** distributed health workforce with the right skill mix across all levels of the health system, along with enforcement of health professional regulation.

**5.3.** ***Ensure health facilities are adequately supplied with medicines***, health commodities, equipment and amenities, with effective essential supportive services.

**5.4.** ***Increase investment in ICT for strengthening HMIS*** with improved data quality, use, dissemination, and promote health researches.

**5.5.** ***Strengthen institutional capacity and system development*** with emphasis on policies, regulations, management, coordination, public and private partnership and local engagement and accountability.

The National Immunization Program has a National Policy which was last updated in 2012. That document has recently been reviewed and an update will be issued in early 2016 to ensure consistency with this new five-year plan. The policy covers all aspects of the program. A new communications strategy for the program is also being prepared and will be finalized by mid-2016.

# 4. PROGRAM GOALS, OBJECTIVES AND STRATEGIES

***The goal of the program is***: *to ensure healthy lives and promote the well-being of all Cambodians by controlling, eliminating or eradicating all vaccine preventable diseases targeted by the National Immunization Program*.

This goal will support the achievement of SDG 3 and all of the goals contained in the WHO GVAP and regional framework. It will also support all relevant goals and objectives in the Health Sector Strategic Plan 2016-2020.

***The immunization program has 5 objectives:***

1. ***Service Delivery*–** Increase immunization coverage nationwide, especially by reducing the number of high risk communities and ensuring that geographic and wealth disparities in coverage are minimized.
2. ***Cold chain*** **–** Strengthen the immunization supply system by implementing recommended activities in EVM improvement plans.
3. ***Community awareness and demand*** **–** Increase community awareness of, and demand for, immunization.
4. ***Surveillance*** **–** Strengthen the quality of surveillance of all vaccine-preventable diseases, involving all key stakeholders.
5. ***Management capacity*** **–** Strengthen management capacity at all levels to support the immunization program.

## 4.1. Objective 1: Service Delivery

***Objective:*** *Increase immunization coverage nationwide, especially by reducing the number of high risk communities and ensuring that geographic and wealth disparities in coverage are minimized.*

This objective will support achievement of SDG targets 3.1, 3.2, 3.3, 3.8 and 3.d. It will also support achievement of goals 1, 2, 3 and 5 and strategic objectives 1, 3 and 4 in the GVAP, and goals 1 to 8 in the WHO regional framework. It will support objectives 1.3 and 5.1 of the Health Sector Strategic Plan 2016-2020.

***This objective has three expected outcomes:***

***Outcome 1.1*** *: Achieve immunization coverage in line with WHO's regional framework 2011-2020.*

***Outcome 1.2*** *: All facilities and teams conducting immunizations adopt safe immunization practices.*

***Outcome 1.3*** *: Reduce the number of high risk communities from 1,832 to 1,080 by the end of 2020*

**Outcome 1.1** will support the first six goals in the WHO regional framework (for details see Section 3 above). These cover six vaccine preventable diseases: polio, measles, rubella, hepatitis B, maternal and neonatal tetanus, and Japanese encephalitis. Coverage will be improved and maintained by a strategy that promotes fixed site immunization and improves awareness of immunization among new mothers when they attend ANC visits. This will be supported by outreach campaigns to ensure that disparities between geographic locations and different economic groups are reduced.

**Outcome 1.2** will mean that all staff comply with safe immunization practices as set out in the National Policy and relevant MOH and WHO guidelines. The program will ensure that all staff have been trained in safe practices and know how to apply guidelines. Staff will use sterile equipment and dispose of waste safely, and also ensure that vaccines are stored and transported correctly.

To support the achievement of **Outcome 1.3**, NIP has developed a database of high-risk communities and a strategy to deliver immunization services to those communities. The database is updated regularly so that outreach work can be targeted effectively. High-risk communities tend to be located in remote areas, and their populations are often very poor and have low education levels. The cost of delivering services to these communities is much higher than for the rest of the population, and strategies have to be adapted to local conditions through the preparation of micro plans. By 2020, using the NIP strategy, the number of high-risk communities will be reduced by over 40%.

## 4.2. Objective 2: Cold chain

***Objective:*** *Strengthen the immunization supply system by implementing recommended activities in EVM improvement plans.*

This objective will support the achievement of SDGs 3.8 and 3.d, as well as goal 2, 3, 4 and strategic objectives 3,4 and 4 of the GVAP. It will support goals 1 to 8 of WHO's regional framework, and objective 5.4 of the Health Sector Strategic Plan 2016-2020.

***This objective has three expected outcomes:***

***Outcome 2.1*** *: All facilities have functioning cold chain equipment relevant to their roles, with no more than 15% of that equipment being older than 10 years*

***Outcome 2.2*** *: Computerized management systems for vaccine stocks and cold chain equipment function effectively at national and provincial levels.*

***Outcome 2.3*** *: All facilities with cold chain equipment have repair and maintenance systems in place with sufficient budget allocations in Annual Operating Plans.*

**Outcome 2.1** will use the NIP databases on cold chain equipment to monitor the age of equipment and its operational status. Different facilities have different types of equipment and it is important that all of these are in good working order to preserve the reach of immunization coverage. The cold chain is only as strong as its weakest link. NIP is able to monitor the types and models of equipment, their origins, date of service and maintenance status. Currently almost two-thirds of major equipment is over ten years old. Activities under this outcome will progressively replace old equipment and reduce the proportion of older equipment to 15% or less.

**Outcome 2.2** will include activities to strengthen current databases and management systems and gradually migrate these online to allow staff at national and PHD levels to access and use information more quickly and efficiently. This will help to strengthen the integrity of the cold chain and improve the quality of information for managers in planning and logistics management.

Repair and maintenance systems remain a weakness in NIP and across the health sector more generally. To achieve **Outcome 2.3**, NIP will support the preparation of repair and maintenance plans at national and local levels, and encourage the inclusion of budget allocations for repairs and maintenance in Annual Operating Plans at all levels. This will promote sustainability of the cold chain and reduce the risk of failure at individual links along the cold chain.

## 4.3. Objective 3: Community awareness and demand

***Objective:*** *Increase community awareness of, and demand for, immunization.*

This objective will support SDG 3.8, and goal 1,2,3,4 and strategic objectives 1,2 and 3 of GVAP. It will also support all goals in the WHO regional framework. It will support objective 5.1 of the Health Sector Strategic Plan 2016-2020.

***The objective has four expected outcomes:***

***Outcome 3.1*** *: Communities understand and support for fully vaccinated children by 23 months old.*

***Outcome 3.2*** *: Communities mobilized to attend outreach and fixed site immunizations with support from local NGOs and CSOs.*

***Outcome 3.3*** *: Stronger links to Health Equity Funds in the provision of transport to health facilities for fixed site immunization*

***Outcome 3.4*** *: Communities understand the purpose, target groups and schedules for newly introduced vaccines.*

To achieve **Outcome 3.1**, NIP will finalize a new communications strategy by mid-2016 that will guide preparation of materials and community based awareness raising and knowledge improvement. In particular the long term health benefits of immunization will be emphasized, as well as the safety that vaccinations provide to both mothers and newborns. Messages will be tailored to different audiences depending on literacy levels and local customs. Increased importance will be given to face-to-face interaction with pregnant women during ANC visits and with the wider village community using both VHSG and NGOs working locally that have demonstrated relations of trust with grassroots communities.

UNICEF in 2015 conducted a mapping exercise looking at NGOs and CSOs working in remote locations, especially those where high risk communities are located. The results will be available in 2016 and these findings will be used to plan activities to achieve **Outcome 3.2**. NIP will develop stronger links with NGOs and CSOs so that those organizations can assist NIP to mobilize communities to attend both fixed site and outreach services. This will help to improve coverage of all vaccines for young children and tetanus toxoid immunization for expecting mothers.

MOH has made a commitment to universal coverage of HEFs as a transitional strategy to universal social health insurance in Cambodia. Many HEFs provide financial support for poor individuals to access transport so that they can attend health facilities for those services covered by the HEF benefit package. In activities leading to Outcome 3.3, NIP will coordinate with HEFs to encourage the provision of financial support for the poor to access fixed site immunization services. This will help to strengthen NIP's fixed site strategy and reduce the costs associated with outreach campaigns in many locations. NIP at different levels will work closely with HEF managers in the Department of Planning and Health Information in MOH in order to achieve this outcome.

Partners in activities leading to **Outcomes 3.1and 3.2** will also be engaged to help disseminate information about the introduction of new vaccines. This will be challenging as the target groups will broaden to include adolescents (for human papilloma virus vaccine) and both adults and children (for Japanese encephalitis vaccine). The communications strategy developed under Outcome 3.1 and 3.4 will include strategies to increase awareness and knowledge about new vaccines, their purpose and the schedules for vaccinations. Messages will be tailored to specific target groups, while taking account of local circumstances and education levels.

## 4.4. Objective 4: Surveillance

***Objective:*** *Strengthen the quality of surveillance of all vaccine-preventable diseases, involving all key stakeholders.*

This objective will support SDG 3.d, and goals 1, 2 and 3 and strategic objectives 1, 4 and 6 in GVAP. It will also support achievement of goals 1 to 7 in WHO's regional framework. Under the Health Sector Strategic Plan 2016-2020 it will support objective 2.4.

***This objective has six expected outcomes:***

***Outcome 4.1*** *: International standard surveillance indicators for vaccine preventable diseases are achieved and maintained.*

***Outcome 4.2*** *: Surveillance management capacity is strengthened in order to reduce reliance on external technical support.*

***Outcome 4.3*** *: Stronger cooperation with the private sector in vaccine preventable disease surveillance.*

***Outcome 4.4*** *: New management tools are developed to improve timeliness and accuracy of surveillance reporting.*

***Outcome 4.5*** *: Sustained efficiency of laboratory surveillance in cooperation with the National Institute for Public Health.*

***Outcome 4.6*** *: Improved detection and reporting of adverse events following immunization.*

The main activities leading to **Outcome 4.1** will focus on sustaining Cambodia's eradication and elimination status for three diseases: polio, measles, and maternal and neonatal tetanus. Surveillance for polio will detect acute flaccid paralysis, while measles surveillance will be done by detecting cases of fever and rashes. Neonatal tetanus will be reported by looking at cases of neonatal death to determine their causes.

While NIP's capacity to manage the surveillance system has improved substantially over the past years, there is still strong reliance on external technical support. Activities under **Outcome 4.2** will help to build staff skills so that management of the system can be more self-reliant. It will also strengthen the capacity of surveillance staff and to adapt to new challenges that are likely to arise with climate change.

Private sector providers of health services are widespread in Cambodia and are often the first point of contact between patients and the health system. Activities leading to **Outcome 4.3** will recognize the importance of private providers and increase collaboration between them and NIP in detecting outbreaks of VPDs, ensuring timely reporting, preparing micro plans and coordinating responses.

A robust surveillance system demands accurate demographic information, topographic and communications information, and a knowledge of local health services and logistics. Much of this information is located in separate databases and improving coordination between them would help to improve the efficiency of planning and resource allocation, and response times when outbreaks occur. Activities under **Outcome 4.4** will explore and test innovative ways to access information more quickly, and to improve the capacity of surveillance staff to analyze local level data to help plan responses.

NIP cooperates closely with the National Institute of Public Health (NIPH) in laboratory surveillance, but the geographic distance between the two institutions and the absence of formal collaborative structures mean that there is scope for improved efficiency in the relationship. Activities in support

of **Outcome 4.5** will look at ways to strengthen the partnership between NIP and NIPH, and to improve the quality of laboratory surveillance and timeliness of reporting results.

Quick and effective responses to any adverse events following immunization are important not just for the patients involved, but also for maintaining public confidence in the integrity of the immunization program. Activities leading to **Outcome 4.6** will improve the ability of immunization staff to detect possible adverse events and to report suspected cases quickly to relevant managers at provincial and national levels. The capacity of staff to plan and implement responses to adverse events will be improved.

## 4.5. Objective 5: Management capacity

***Objective:*** *Strengthen at all management capacity levels to support the immunization program.*

This objective will support SDGs 3.8, 3.c and 3.d. It will contribute to achieving all goals in GVAP and to strategic objectives 1, 4, and 5 in that plan. It will also support all goals in WHO's regional framework. Under the Health Sector Strategic Plan 2016-2020 it will support objectives 1.3, 5.1, 5.3, 5.6 and 5.7.

***This objective has nine expected outcomes:***

***Outcome 5.1*** *: All program positions are filled and each position has a detailed job description.*

***Outcome 5.2*** *: All program managers have skills in planning, budgeting, integration of activities with other MOH programs, and monitoring and evaluation.*

***Outcome 5.3*** *: All program staff have up to date training in their area of responsibility, underpinned by a staff training database and annual staff training plans.*

***Outcome 5.4*** *: Both medium and long term financing strategies for the program, with a view to greater sustainability and reduced reliance on donor support.*

***Outcome 5.5*** *: Comprehensive annual and 3-year rolling budgets with improved expenditure tracking and forecasting and timely reporting.*

***Outcome 5.6*** *: An up to date computerized monitoring system that provides timely, accurate and disaggregated information to managers in the program and to other relevant units in MOH.*

***Outcome 5.7*** *: Improved research capacity to conduct sero-surveillance studies, reviews and evaluations.*

***Outcome 5.8*** *: Relevant sub-decrees, regulations, guidelines, strategies and operating procedures are prepared in a timely manner and approved by the Ministry of Health.*

***Outcome 5.9*** *: Increased computerization of the program to allow more efficient communications and more timely sharing of data.*

Activities leading to **Outcome 5.**1 will ensure that all positions in the program, from national to local levels, are filled with staffs that have appropriate qualifications and experiences. During the first two years of this plan, job descriptions for all positions will be revised and any gaps addressed in order to set out responsibilities and reporting lines in greater detail. All staff will retain and sign copies of their job descriptions, and the documents will form the basis of staff performance management. New job descriptions will also aid the recruitment of new staff whenever existing staff retire or move to other posts.

Training activities under **Outcome 5.2** will improve the skills of management staff at national, provincial and OD levels so that the efficiency and effectiveness of the program overall can be improved. Emphasis will be put on the linkage between activity planning and budgeting, improving coordination with other units and programs in MOH, and improving the capacity of managers to analyze data to inform planning and management decisions. Supervision visits will be used to strengthen the mentoring of management staff, and opportunities for on the job training and staff learning exchanges will be identified to reduce reliance on traditional training workshops.

Activities for **Outcome 5.3** will address problems of duplicate training and training gaps for program staff. A training database will be established to ensure that all program staff develop relevant skills and ensure those skills remain up to date. This will also help staff and managers to plan career paths and identify requirements for promotion. Annual staff training plans will be prepared at each level and activities incorporated into Annual Operating Plans.

Financing for the program has received increasing levels of support from government, but there is still considerable reliance on funding from Gavi. Activities for **Outcome 5.4** will include development of medium and long term financing strategies, identifying ways in which reliance on external donors can be reduced. This will be done in close cooperation with managers in MOH and the Ministry of Economy and Finance. The aim will be to improve the financial sustainability of the program in the longer term. Possible links with the establishment of Special Operating Agencies and other funding innovations to be developed by MOH will be explored.

Skills in budgeting and linking activity planning to budgets will be improved as part of reaching **Outcome 5.5**. Annual budgets will be prepared as part of the development of Annual Operating Plans, but these will also be linked to 3-year rolling budgets in coordination with broader budgetary reforms in MOH and across government more generally. Tools to track expenditure in a more timely manner will be developed so that managers can use planned versus actual expenditure figures to improve the responsiveness of quarterly assessments and planning. Skills in forecasting expenditure and likely budget needs each quarter will also be strengthened.

In line with MOH initiatives to improve the quality and timeliness of data in the HMIS, the program will progressively increase the computerization of data collection and the ability of sub-national levels to report data electronically. This will improve the quality of information available for planning and logistics management. Other activities under **Outcome 5.6** will look at ways to make it easier for NIP databases to exchange information with other units in MOH and to incorporate data from the private sector. Greater disaggregation of data will be introduced in order to improve the targeting of program activities and to ensure that the program is addressing geographic and wealth disparities in a systematic way.

Activities leading to **Outcome 5.7** will improve the research capacity of staff at both national and sub-national levels. Much of the focus of this will be on participation in annual reviews, mid-term and final program evaluations, sero-surveillance studies and joint reviews with Gavi, WHO and UNICEF. However, research skills will also be improved to allow NIP staff to take a more active role in regional and international forums on developments in immunization, and regional responses to disease outbreaks and the changing patterns of disease prevalence as a result of climate change.

For the program to remain relevant and effective, it is important that guidelines and standard operating procedures are kept up to date and in line with international standards and recommendations. Activities for **Outcome 5.8** will strengthen the skills of program staffs to prepare such guidelines, and also to assist the drafting of sub-decrees and regulations in cooperation with

MOH so that the legal framework for immunization in Cambodia maintains relevant to current circumstances. In the early stage of this plan the new law on immunization is likely to be passed by the National Assembly and the Senate, so this will require the preparation of new implementation regulations and sub-decrees.

Current use of computers and the internet for communications and data sharing in the program remains fragmented and there are competing formats and software being used. To achieve Outcome 5.9, activities will include a master plan for computerization of the program's communications, with protocols for data sharing and reporting. This will improve the overall efficiency of information flows in the system and allow for more timely coordination between managers at each level.

Annex 1 provides a summary table of the goal, objectives and expected outcomes of this five year plan. Activities under Outcomes will be detailed in Annual Operating Plans at each level.

# 5. MANAGEMENT SYSTEMS

At national level NIP has 30 staff. These include the NIP Manager and Deputy Manager, administrative and accounting staff, and technical staff in the areas of service delivery, cold chain and logistics, training, communications and community education, disease surveillance, and monitoring and evaluation. At provincial and OD levels there are NIP Managers who will work closely with both national technical staff and local level directors. At the Health Center level, immunization services will be managed by the HC chief and vaccinations conducted by nurses and midwives. About 40% of immunizations are currently provided in outreach campaigns where health staffs visit villages in collaboration with local authorities and VHSG.

Fax, text message and email use are common and there is substantial phone contact between program staff. However, most of the communications needed to manage and monitor the program are still paper based. This reduces the efficiency of the system and the timeliness of management inputs. MOH is rolling out computerization of the overall monitoring system and NIP will be a part of that process. Under this five year plan the provision of computers and internet access, and increasing the use of online forms will be focused on increasing management efficiency and information sharing at all levels.

Management of performance and service quality will be done through supervision visits which work on a cascade basis, from national to provincial level, provincial to OD level, and OD to HC level. Supervision will be done using checklists and mentoring by senior staff from NIP at national level. Routine supervision will be quarterly, but in the case of adverse events or disease outbreaks, ad hoc monitoring and intervention teams can be mobilized at short notice.

Reporting will be done monthly and quarterly, using standard forms, and there are quality control mechanisms in place to follow up late reports or inconsistencies in data. Planning will be done on an annual basis and there will be mid-year reviews of progress during which planning adjustments can be made. Tracking of expenditure will be done quarterly.

Financial flows will come through the Department of Budget and Finance in MOH. Funds from Gavi will be disbursed through the Secretariat of the Health Sector Support Program. In the administrative structure of MOH, NIP sits under the National Center for Maternal and Child Health, and accounting staff in that center will oversee direct disbursements to NIP. NIP has its own accounting staff, but given increased funds from both Gavi and government over the next five years, new staff will be added.

WHO and UNICEF provide technical advice to NIP and offices are provided at national level for technical staffs so that they can work side by side with NIP staff. The advisers will also help to source technical advice for NIP in line with NIP requests.

The expansion of program coverage, intensification of elimination/control efforts, the introduction of new vaccines and increased support from Gavi have all placed more responsibilities on national level manager, senior staff and program staff at sub-national levels. Under this five year plan, revised job descriptions under Outcome 5.1 will help to demarcate roles and to provide a clear basis for staff performance management.

At national level, the Technical Working Group for Health (TWGH) is the main forum for dialogue between government and partners. NGOs are represented in the TWGH by an umbrella organization. The TWGH meets monthly and considers major documents and plans, approving them where this is in its

mandate. NIP regularly presents plans, policies, reviews and key strategic documents to the TWGH. The TWGH is mirrored at provincial level by provincial technical working groups where individual NGOs attend along with PHD and OD representatives. These meet every 1 to 3 months to monitor activity progress. The AOP process works from OD level up from about July-August each year, culminating in a national workshop late in the year with MOH, donors, partners and NGOs. This is linked to detailed planning meetings of 4 Task Forces in MOH to help finalize the national AOP (which operates on a calendar year). The four Task Forces are: Reproductive, Maternal, Neonatal and Child Health; Communicable Diseases; Non-communicable Diseases; and Health System Strengthening. A challenge for NIP is that it is assigned to the first of these Task Forces, but its work cuts across two other Task Forces, making coordination of planning inputs more complex.

## 5.1. Monitoring and evaluation

Immunization data from the 25 provinces is submitted directly to DPHI. Aggregated data is then supplied to NIP for analysis and use in management and planning. Two Deputy Managers in NIP are responsible for analysis of the immunization and surveillance data. Monthly management meetings are held in NIP to monitor data and any issues are incorporated into checks during supervision visits. Quarterly meetings are held with EPI managers from all 25 provinces, and data analysis is disseminated and discussed at these meetings.

DPHI will be responsible for data collection, aggregation and management of the health management information system (HMIS) in MOH. It can provide data disaggregated by sex and age for certain indicators, and geographic disaggregation by province for most indicators. It can provide vaccine-specific disaggregation for immunization figures. It does not disaggregate data by wealth quintile or ethnicity (the former is done in the CDHS). DPHI prepares detailed data sets of all key indicators for the AOP planning process and for the mid-year review of the AOPs in MOH. DPHI is also responsible for conducting data quality checks and annual data quality assessments.

The CDHS, normally conducted every five years, provides substantial data on health indicators and immunization coverage. It disaggregates data by age, sex, location and wealth quintile for many indicators. A CDHS was completed in 2014, and the next one is expected in 2019, in time for the final evaluation of this five year plan.

HEFs reimburse the cost of health services for the poor and currently cover about two-thirds of ODs. Coverage should be universal by 2020. HEFs collect data on clients so can provide a supplementary data set for information about poor and vulnerable households. Specific research projects on immunization-related activities are carried out from time to time by research organizations (including the National Institute of Public Health), academics and NGOs and these can provide supplementary and qualitative data to assist analysis of mainstream data sets.

Annual joint appraisal is conducted with NIP, WHO, UNICEF and Gavi representatives. These provide useful updates on data and recommendations for action. EVM assessment is held every three years. The latest assessment was conducted in mid-2015 and the next one is expected in 2018. Each assessment report is accompanied by an EVM improvement plan, and the plan includes targets to be assessed in subsequent reviews.

A mid-term review of progress on this five year plan will be conducted in 2018, and a completion evaluation in 2020.

Key indicators for tracking progress of this plan are set out in Table 3. The source(s) for each indicator are also shown.

## Table 3: Summary of key indicators for the five year plan 2016-2020

| Indicator | Source |
|---|---|
| ***Goal level*** | |
| Infant mortality rate | CDHS |
| Children under 5 years mortality rate | CDHS |
| Maternal mortality rate | CDHS |
| ***Objective 1: Service delivery*** | |
| DTP 3 coverage | JRF, CDHS |
| MR 2 coverage | JRF, CDHS |
| % districts with >80% DTP 3 coverage | JRF, CDHS |
| % difference DTP 3 coverage between highest and lowest wealth quintiles | CDHS |
| DTP 3 coverage in highest wealth quintile | CDHS |
| DTP 3 coverage in lowest wealth quintile | CDHS |
| Drop-out rate from DTP 1 to DTP 3 | JRF, CDHS |
| % children aged 12-23 months old fully vaccinated | CDHS |
| Number of high risk communities | NIP |
| ***Objective 2: Cold chain*** | |
| % of cold chain refrigerators > 10 years old | NIP |
| Number of targets set in EVM improvement plans achieved | EVMA |
| Cold chain management databases up to date | NIP |
| ***Objective 3: Community awareness and demand creation*** | |
| Communications strategy completed, with implementation plan | NIP |
| % of high risk communities with NGOs/CSOs conducting awareness/demand creation activities | NIP |
| Proportion of immunizations conducted at fixed sites | JRF, NIP |
| ***Objective 4: Surveillance*** | |
| Number of WHO standard surveillance indicators maintained | NIP |
| Number of private sector partners engaged in surveillance | NIP |
| % sample analysis results to provinces within 1 day of receipt from WHO | NIP |
| ***Objective 5: Management capacity*** | |
| Annual plans and budgets approved by MOH | NIP, MOH |
| % staff positions with new job descriptions | NIP |
| Staff training database and annual training plans approved by MOH | NIP, MOH |
| Medium term financing strategy developed | NIP, JRF |
| Immunization law passed and required sub-decrees and regulations issued | NIP, MOH, JRF |

# 6. BUDGET AND FINANCING

The major sources of funding for NIP are government budget allocations and Gavi grants. Most Gavi funding in the period covered by this plan will come from the Gavi Health Systems Strengthening grant, with some additional funding for the introduction of new vaccines. Government is spending on health increased substantially under the previous plan and in that time new public financial management initiatives were also introduced by government. There is some financial support from WHO and UNICEF, but their major contributions are in the provision of technical support. Previous funding from Japan and some NGOs ceased before the end of the previous plan.

In 2014, government provided 45.05% of NIP funding and Gavi provided 51.23%. Small percentages were supplied by WHO (2.94%) and two partner NGOs (0.78%). All immunization services are provided free to children under two years of age and new mothers receive free tetanus toxoid injections.

NIP staffs undertake joint annual reviews with WHO and UNICEF staff, and these help to set priorities and define interventions for the coming year. These reviews feed into the preparation of the Annual Operating Plans (AOPs) which include budget requests. These go to the Ministry of Economy & Finance at the end of the year and government decides on final funding allocations which are then released in the first quarter of the year[27].

The key government budgeting tools are the Public Investment Program (PIP), the Budget Strategic Plan (BSP) and the Annual Budget Plan (ABP), which is incorporated into the AOP. These documents are prepared in line with the government's National Strategic Development Plan and help the Ministry of Economy & Finance to make the annual budget allocations. The Department of Planning & Health Information in MOH annually updates PIPs based on input provided by relevant units of the ministry. The PIPs directly link to priorities in MOH's health strategic plan.

The BSP is the medium term expenditure plan that incorporates the sector ABP, and together with PIPs, constitutes the core strategy for medium to long term planning. All units, including NIP, prepare their ABPs and AOPs in line with the PIP and BSP documents.

In 2014, MOH prepared its Health Financing Policy[28]. This set out six guiding principles:

- *Universality*: equitable access to essential curative, preventive, promotive and rehabilitative health care services, irrespective of socioeconomic status
- *Poor and vulnerable (first)*: the health financing system developments will ensure inclusion of the poor and vulnerable as a means of socioeconomic development
- *Financial protection*: access will be guaranteed irrespective of available money
- *Health care services:* shall be effective, provided in an efficient and acceptable way
- *Good governance*: the health financing system follows the rule of law and is responsive to present and future needs of society
- *Accountability and client oriented:* health providers are accountable for the quality of their services that must be patient-centered.

The Annual Health Financing Report 2012, produced in 2013, estimated total health expenditure (THE) at 5% of Gross Domestic Product. THE was USD52 per capita, of which 61% came from out-of-pocket

[27]The financial year in Cambodia is the calendar year.
[28]MOH (2014) *Health Financing Policy* Phnom Penh, July.

spending, 24% from government and 15% from development partners. This showed a substantial rise in government contributions from 19% in 2008, and a drop in the reliance on development partner funding, which contributed 20% in 2008.

The progress towards financial sustainability has therefore been positive, and the government is committed to longer term sustainable funding of the health sector. Funding for the immunization program and prospects for its financial sustainability have to be seen in this larger context. Reliance on Gavi support will remain a key feature during the period of this plan, but NIP will be exploring ways to improve cost effectiveness. In particular, Gavi funding of staff incentive payments will be phased out by the end of this plan in line with government plans to increase staff salaries and introduce broader performance based funding.

Specific measures for financial sustainability by NIP will include a stronger evidence-based focus on resource allocation in planning and budgeting, and adoption of audit and evaluation recommendations into reviews, supervision visits and planning. The progressive shift of high-risk communities into the routine immunization rounds will also reduce costs in the longer term, as will the purchase of new cold chain equipment and the use of better surveillance management tools.

Annex 2 contains a summary budget for the five year period, showing planned funding sources.

# ANNEX :

## ANNEX 1: Summary of Goal, Objectives and Outcomes

| | |
|---|---|
| **Goal**: Ensure healthy lives and promote the well-being of all Cambodians by controlling, eliminating or eradicating all vaccine preventable diseases targeted by the National Immunization Program. | |
| **Objective 1: Service Delivery –** Increase immunization coverage nationwide, especially by reducing the number of high risk communities and ensuring that geographic and wealth disparities in coverage are minimized. | |
| **Outcome 1.1** | Achieve immunization coverage in line with WHO's regional framework 2011-2020. |
| **Outcome 1.2** | All facilities and teams conducting immunizations adopt safe immunization practices. |
| **Outcome 1.3** | Reduce the number of high risk communities from 1,832 to 1,080 by the end of 2020. |
| **Objective 2: Cold chain –** Strengthen the immunization supply system by implementing recommended activities in EVM improvement plans. | |
| **Outcome 2.1** | All facilities have functioning cold chain equipment relevant to their roles, with no more than 15% of that equipment being older than 10 years. |
| **Outcome 2.2** | Computerized management systems for vaccine stocks and cold chain equipment function effectively at national and provincial levels. |
| **Outcome 2.3** | All facilities with cold chain equipment have repair and maintenance systems in place with sufficient budget allocations in Annual Operating Plans. |
| **Objective 3: Community awareness and demand –** Increase community awareness of, and demand for, immunization. | |
| **Outcome 3.1** | Communities understand and support for vaccination for children by 23 months old. |
| **Outcome 3.2** | Communities are mobilized to attend outreach and fixed site immunizations with support from local NGOs and CSOs. |
| **Outcome 3.3** | Stronger links to Health Equity Funds in the provision of transport to health facilities for fixed site immunization. |
| **Outcome 3.4** | Communities understand the purpose, target groups and schedules for newly introduced vaccines. |
| **Objective 4: Surveillance –** Strengthen the quality of surveillance of all vaccine-preventable diseases, involving all key stakeholders. | |
| **Outcome 4.1** | WHO standard surveillance indicators for vaccine preventable diseases are achieved and maintained. |
| **Outcome 4.2** | Surveillance management capacity is strengthened in order to reduce reliance on external technical support. |
| **Outcome 4.3** | Stronger cooperation with the private sector in vaccine preventable disease surveillance. |
| **Outcome 4.4** | New management tools are developed to improve timeliness and accuracy of surveillance reporting. |

| | |
|---|---|
| **Outcome 4.5** | Improved efficiency of laboratory surveillance in cooperation with the National Institute for Public Health. |
| **Outcome 4.6** | Improved detection and reporting of adverse events following immunization. |
| **Objective 5: Management capacity –** Strengthen management capacity at all levels to support the immunization program. | |
| **Outcome 5.1** | All program positions are filled and each position has a detailed job description. |
| **Outcome 5.2** | All program managers have skills in planning, budgeting, integration of activities with other MOH programs, and monitoring and evaluation. |
| **Outcome 5.3** | All program staff have up to date training in their area of responsibility, underpinned by a staff training database and annual staff training plans. |
| **Outcome 5.4** | Both medium and long term financing strategies for the program, with a view to greater sustainability and reduced reliance on donor support. |
| **Outcome 5.5** | Comprehensive annual and 3-year rolling budgets with improved expenditure tracking and forecasting and timely reporting. |
| **Outcome 5.6** | An up to date computerized monitoring system that provides timely, accurate and disaggregated information to managers in the program and to other relevant units in MOH. |
| **Outcome 5.7** | Improved research capacity to conduct sero-surveillance studies, reviews and evaluations. |
| **Outcome 5.8** | Relevant sub-decrees, regulations, guidelines, strategies and operating procedures are prepared in a timely manner and approved by the Ministry of Health. |
| **Outcome 5.9** | Increased computerization of the program to allow more efficient communications and more timely sharing of data. |

## ANNEX 2: Budget 2016 – 2020

| *Goal:* **Ensure healthy lives and promote the well-being of all Cambodians by controlling, eliminating or eradicating all vaccine preventable diseases targeted by the National Immunization Program.** | **2016** | **2017** | **2018** | **2019** | **2020** | **Funding source** |
|---|---|---|---|---|---|---|
| **Objective 1: Service Delivery** – Increase immunization coverage nationwide, especially by reducing the number of high risk communities and ensuring that geographic and wealth disparities in coverage are minimized. | | | | | | |
| **Outcome 1.1:** Achieve immunization coverage in line with WHO's regional framework 2011-2020. | 3,516,189 | 3,585,569 | 3,756,892 | 3,944,736 | 4,141,972 | **RGC** |
| | 697,680 | 1,137,680 | 642,680 | 631,680 | 680,080 | **Gavi** |
| | 3,050,137 | 70,504 | | | | **Gavi VIG** |
| | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | **WHO** |
| **Outcome 1.2:** All facilities and teams conducting immunizations adopt safe immunization practices. | 353,507 | 371,182 | 389,741 | 409,228 | 429,689 | **RGC** |
| | 71,760 | 71,760 | 71,760 | 71,760 | 71,760 | **Gavi** |
| **Outcome 1.3:** Reduce the number of high risk communities from 1,832 to 1,080 by the end of 2020. | 538,344 | 538,344 | 538,344 | 538,344 | 538,344 | **Gavi** |
| | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | **WHO** |
| | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | **UNICEF** |
| **Objective 2: Cold chain** – Strengthen the immunization supply system by implementing recommended activities in EVM improvement plans. | | | | | | |
| **Outcome 2.1:** All facilities have functioning cold chain equipment relevant to their roles, with no more than 15% of that equipment being older than 10 years. | 408,250 | 428,662 | 450,095 | 472,599 | 496,228 | **RGC** |
| | 796,880 | 157,800 | 269,100 | 653,800 | 133,420 | **Gavi** |
| **Outcome 2.2:** Computerized management systems for vaccine stocks and cold chain equipment function effectively at national and provincial levels. | 68,000 | 18,000 | 28,000 | 58,000 | 18,000 | **Gavi** |
| | 32,000 | | | | | **UNICEF** |
| **Outcome 2.3:** All facilities with cold chain equipment have repair and maintenance systems in place with sufficient budget allocations in Annual Operating Plans. | 110,000 | 110,000 | 110,000 | 110,000 | 110,000 | **Gavi** |
| | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | **WHO** |
| | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | **UNICEF** |

| *Goal:* **Ensure healthy lives and promote the well-being of all Cambodians by controlling, eliminating or eradicating all vaccine preventable diseases targeted by the National Immunization Program.** | **2016** | **2017** | **2018** | **2019** | **2020** | **Funding source** |
|---|---|---|---|---|---|---|
| **Objective 3:** Community awareness and demand – Increase community awareness of, and demand for, immunization. | | | | | | |
| **Outcome 3.1:** Communities understand and support for fully vaccinated children by 23 months old. | 29,220 | 25,000 | 34,220 | 55,000 | 39,220 | **Gavi** |
| **Outcome 3.2:** Communities are mobilized to attend outreach and fixed site immunizations with support from local NGOs and CSOs. | 55,000 | 30,000 | 30,000 | 55,000 | 30,000 | **Gavi** |
| **Outcome 3.3:** Stronger links to Health Equity Funds in the provision of transport to health facilities for fixed site immunization. | | | | | | **RGC** |
| **Outcome 3.4:** Communities understand the purpose, target groups and schedules for newly introduced vaccines. | 36,000 | 5,000 | 0 | 5,000 | 0 | **Gavi** |
| | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | **WHO** |
| | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | **UNICEF** |
| **Objective 4: Surveillance** – Strengthen the quality of surveillance of all vaccine-preventable diseases, involving all key stakeholders. | | | | | | |
| **Outcome 4.1:** WHO standard surveillance indicators for vaccine preventable diseases are achieved and maintained. | 108,126 | 108,126 | 108,126 | 108,126 | 108,126 | **Gavi** |
| | 16,000 | 17,000 | 16,000 | 36,000 | 17,000 | **WHO** |
| **Outcome 4.2:** Surveillance management capacity is strengthened in order to reduce reliance on external technical support. | 15,000 | | 15,000 | | | **WHO** |
| | 450,000 | 0 | 450,000 | 0 | 450,000 | **Gavi** |
| **Outcome 4.3:** Stronger cooperation with the private sector in vaccine preventable disease surveillance. | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | **RGC** |
| | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | **WHO** |
| **Outcome 4.4:** New management tools are developed to improve timeliness and accuracy of surveillance reporting. | 23,400 | 0 | 0 | 0 | 0 | **Gavi** |
| | 5,000 | | 5,000 | | | **WHO** |

| *Goal:* **Ensure healthy lives and promote the well-being of all Cambodians by controlling, eliminating or eradicating all vaccine preventable diseases targeted by the National Immunization Program.** | **2016** | **2017** | **2018** | **2019** | **2020** | **Funding source** |
|---|---|---|---|---|---|---|
| **Outcome 4.5:** Improved efficiency of laboratory surveillance in cooperation with the National Institute for Public Health. | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | **RGC** |
| | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 | **WHO** |
| **Outcome 4.6:** Improved detection and reporting of adverse events following immunization. | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | **RGC** |
| | 1,000 | 20,000 | 1,000 | 1,000 | 20,000 | **WHO** |
| **Objective 5: Management capacity** – Strengthen management capacity at all levels to support the immunization program. | | | | | | |
| **Outcome 5.1:** All program positions are filled and each position has a detailed job description. | 42,000 | 44,100 | 46,305 | 48,620 | 51,051 | **RGC** |
| | 384,240 | 384,240 | 384,240 | 384,240 | 384,240 | **Gavi** |
| **Outcome 5.2:** All program managers have skills in planning, budgeting, integration of activities with other MOH programs, and monitoring and evaluation. | 12,000 | 12,600 | 13,230 | 13,892 | 14,586 | **RGC** |
| | 544,008 | 544,008 | 544,008 | 544,008 | 544,008 | **Gavi** |
| | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | **WHO** |
| | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | **UNICEF** |
| **Outcome 5.3:** All program staff have up to date training in their area of responsibility, underpinned by a staff training database and annual staff training plans. underpin | 0 | 15,000 | 15,000 | 15,000 | 15,000 | **Gavi** |
| | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | **WHO** |
| **Outcome 5.4:** Both medium and long term financing strategies for the program, with a view to greater sustainability and reduced reliance on donor support. | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | **RGC** |
| **Outcome 5.5:** Comprehensive annual and 3-year rolling budgets with improved expenditure tracking and forecasting and timely reporting. | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | **RGC** |
| | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | **Gavi** |
| **Outcome 5.6:** An up to date computerized monitoring system that provides timely, accurate and disaggregated information to managers in the program and to other relevant units in MOH. | 41,000 | 61,000 | 41,000 | 61,000 | 41,000 | **Gavi** |

| *Goal:* **Ensure healthy lives and promote the well-being of all Cambodians by controlling, eliminating or eradicating all vaccine preventable diseases targeted by the National Immunization Program.** | **2016** | **2017** | **2018** | **2019** | **2020** | **Funding source** |
|---|---|---|---|---|---|---|
| **Outcome 5.7:** Improved research capacity to conduct sero-surveillance studies, reviews and evaluations. | 106,000 | 86,000 | 86,000 | 86,000 | 176,000 | **Gavi** |
| | 30,000 | 5,000 | 5,000 | 5,000 | 5,000 | **WHO** |
| **Outcome 5.8:** Relevant sub-decrees, regulations, guidelines, strategies and operating procedures are prepared in a timely manner and approved by the Ministry of Health. | 0 | 7,500 | 7,500 | 0 | 0 | **Gavi** |
| **Outcome 5.9:** Increased computerization of the program to allow more efficient communications and more timely sharing of data. | 200,000 | 120,000 | 120,000 | 100,000 | 120,000 | **Gavi** |
| **TOTAL** | **11,949,741** | **8,183,075** | **8,387,241** | **8,617,033** | **8,843,724** | |

*Notes*

1. Funds for Outcome 3.3 were still under negotiation in late 2015, but were expected to be relatively small.
2. The budget does not include costs for any activities initiated at sub-national (PHD and OD) levels.
3. The higher than trend budget increase in 2016 is due to allocations for the introduction of new vaccines.

## Annex 3: Activity Schedule

| Goal: Ensure healthy lives and promote the well-being of all Cambodians by controlling, eliminating or eradicating all vaccine preventable diseases targeted by the National Immunization Program. | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | | 2020 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Objective 1: Service Delivery – Increase immunization coverage nationwide, especially by reducing the number of high risk Communities and ensuring that geographic and wealth disparities in coverage are minimized. | | | | | | | | | | | | | | | | | | | | |
| **Outcome 1.1:** Achieve immunization coverage in line with WHO's regional framework 2011-2020. | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Outcome 1.2:** All facilities and teams conducting immunizations adopt safe immunization practices. | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Outcome 1.3:** Reduce the number of high risk communities from 1,832 to 1,080 by the end of 2020. | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Objective 2: Cold chain – Strengthen the immunization supply system by implementing recommended activities in EVM improvement plans. | | | | | | | | | | | | | | | | | | | | |
| **Outcome 2.1:** All facilities have functioning cold chain equipment relevant to their roles, with no more than 15% of that equipment being older than 10 years. | X | | X | | | | X | | | | X | | | | X | | | | X | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| **Outcome 2.2:** Computerized management systems for vaccine stocks and cold chain equipment function effectively at national and provincial levels. | | X | | | | | | | X | | | | | | | | X | | | |
| **Outcome 2.3:** All facilities with cold chain equipment have repair and maintenance systems in place with sufficient budget allocations in Annual Operating Plans. | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Objective 3: Community awareness and demand – Increase community awareness of, and demand for, immunization. | | | | | | | | | | | | | | | | | | | | |
| **Outcome 3.1:** Communities understand and support for fully vaccinated children by 23 months old. | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Outcome 3.2:** Communities are mobilized to attend outreach and fixed site immunizations with support from local NGOs and CSOs. | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| **Outcome 3.3:** Stronger links to Health Equity Funds in the provision of transport to health facilities for fixed site immunization. | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Outcome 3.4:** Communities understand the purpose, target groups and schedules for newly introduced vaccines. | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Objective 4: Surveillance – Strengthen the quality of surveillance of all vaccine-preventable diseases, involving all key stakeholders. | | | | | | | | | | | | | | | | | | | | |
| **Outcome 4.1:** WHO standard surveillance indicators for vaccine preventable diseases are achieved and maintained. | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Outcome 4.2:** Surveillance management capacity is strengthened in order to reduce reliance on external technical support. | X | X | X | X | | | | | X | X | X | X | | | | | X | X | X | X |
| **Outcome 4.3:** Stronger cooperation with the private sector in vaccine preventable disease surveillance. | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| **Outcome 4.4:** New management tools are developed to improve timeliness and accuracy of surveillance reporting. | | X | X | X | | | | | | | | | | | | | | | | |
| **Outcome 4.5:** Improved efficiency of laboratory surveillance in cooperation with the National Institute for Public Health. | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Outcome 4.6:** Improved detection and reporting of adverse events following immunization. | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Objective 5: Management capacity – Strengthen management capacity at all levels to support the immunization program | | | | | | | | | | | | | | | | | | | | |
| **Outcome 5.1:** All program positions are filled and each position has a detailed job description. | X | | | | X | | | | X | | | | X | | | | X | | | |
| **Outcome 5.2:** All program managers have skills in planning, budgeting, integration of activities with other MOH programs, and monitoring and evaluation. | | X | | | | X | | | | X | | | | X | | | | X | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| **Outcome 5.3:** All program staff have up to date training in their area of responsibility, underpinned by a staff training database and annual staff training plans. | | | | | | | X | | | | X | | | | X | | | | X | |
| **Outcome 5.4:** Both medium and long term financing strategies for the program, with a view to greater sustainability and reduced reliance on donor support. | | | X | X | | | X | X | | | X | X | | | X | X | | | X | X |
| **Outcome 5.5:** Comprehensive annual and 3-year rolling budgets with improved expenditure tracking and forecasting and timely reporting. | | | X | X | | | X | X | | | X | X | | | X | X | | | X | X |
| **Outcome 5.6:** An up to date computerized monitoring system that provides timely, accurate and disaggregated information to managers in the program and to other relevant units in MOH. | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

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| **Outcome 5.7:** Improved research capacity to conduct sero-surveillance studies, reviews and evaluations. | | X | | | | X | | | | X | | | | X | | | | X | | |
| **Outcome 5.8**: Relevant sub-decrees, regulations, guidelines, strategies and operating procedures are prepared in a timely manner and approved by the Ministry of Health. | | | | | | | | X | | | | X | | | | | | | | |
| **Outcome 5.9:** Increased computerization of the program to allow more efficient communications and more timely sharing of data. | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

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