

**ព្រះរាជាណាចក្រកម្ពុជា**

**ជាតិ សាសនា ព្រះមហាក្សត្រ**

Kingdom of Cambodia  
Nation Religion King

**ក្រសួងសុខាភិបាល**

Ministry of Health

**ផែនការយុទ្ធសាស្ត្រសុខាភិបាលជាតិ  
ស្តីពី**

**ការប្រយុទ្ធនឹងជំងឺរបេង ក្នុងព្រះរាជាណាចក្រកម្ពុជា  
២០១១-២០១៥**

**National Health Strategie Plan  
for  
Tuberculosis Control in the Kingdom of Cambodia  
2011-2015**

**មជ្ឈមណ្ឌលជាតិកំចាត់រោគរបេង និងហង់សិន**

**ឧសភា ឆ្នាំ ២០១១**

**National Center for Tuberculosis and Leprosy Control (CENAT)  
May 2011**

## FOREWORD

This 2011-2015 strategic plan is the third five-year National Health Strategic Plan for Tuberculosis Control after the second one covering the period from 2006 to 2010. The development process of the plan was both consultative and participative with all the main partners, both within and outside the government participating in the formulation of this document.

The plan was developed based on the National Health Policies and Strategies for TB Control in Cambodia 2011-2015 issued in July 2010 as well as the overall National Health Strategic Plan 2008-2015 as well as the Global Plan to STOP TB 2006-2015.

To achieve the objectives of the National Tuberculosis Control Program (NTP), all strategic activities expressed in this plan need to be carefully thought out and planned and conducted. In addition, more concrete annual action plan need to be formulated and activities carried out. Resources mobilization and management will be of great importance for successful implementation of the plans. Thus, commitment from all partners including the government, local authority, community, financial and technical partners are very essential.

I believe that this document is not only useful for NTP as the basis for achieving its targets but also for the contribution to attaining those of the overall National Health Strategic Plan 2008-2015 in line with the National Strategic Development Plan of the Royal Government. Additionally, it is also useful for all partners concerned including health officials and partners agencies to understand and support with the aim at successfully implementing this strategic plan for TB control.

Phnom Penh, 30 May, 2011

**Minister of Health** ✓ *MH*



**Dr. Mam Bun Heng**

## **Acknowledgement**

On behalf of the National Center for Tuberculosis and Leprosy Control (CENAT), I would like to express our sincere gratitude to all who have been involved in the development of the National Health Strategic Plan for TB Control 2011-2015.

I wish also to extend our deep thanks to the members of the Sub-technical Working group for TB control, who particularly during the ICC meetings, have made a lot of contribution to the finalization of the plan.

I wish to express our great thanks to the World Health Organization for both technical and financial support, as well as other partners within and outside the government, for technical inputs for the development of this document.

I would like to emphasize that without strong support, full and active participation of you all and the committee members, as well as other people involved, the finalization of this document could not have taken place.

**Phnom Penh, 09 May, 2011**

**National Center for TB and Leprosy Control**

**Director**



**Dr. Mao Tan Eang**

## I. BACKGROUND

### 1. BURDEN OF TB IN CAMBODIA

Despite significant achievements made by the National TB Programme in the past decade, Cambodia still remains one of the 22 high TB burden countries in the world. In 2009, the prevalence of all form of TB was estimated at 693 /100,000 pop. The incidence of all forms of TB was estimated at 442 /100,000 population, accounting for around 60,000 people with new active TB each year including about 27,000 people with infectious forms of tuberculosis<sup>1</sup>. The prevalence of HIV in TB patients, though declining over the years, still remains high at 6.3 %<sup>2</sup>. The rate of Multi-drug resistant TB (MDR-TB) is not high in Cambodia. However, preliminary results from the second National Drug Resistance Survey (2006) indicate an increase in the prevalence of MDR-TB since the first survey. In 2006, the prevalence of MDR-TB among new smear-positive TB cases was 1.4 % and that among re-treatment cases was 10%<sup>3</sup>.

### 2. TB CONTROL INFRASTRUCTURE NETWORK

The National TB Programme (NTP) network covers the entire public health care delivery system which includes the National Centre for Tuberculosis and Leprosy Control (CENAT) at the national level, all 24 provincial and city health departments, 77 operational districts and 1070 health facilities, which include 80 referral hospitals and 960 health centres<sup>4</sup>. Each level has designated TB staff and is responsible for specific functions of the TB programme as summarised below:

**Central level:** Overall responsibility for the NTP lies with the CENAT which is manned by around 200 staff, out of which 30 full-time staff are working for the NTP headquarters and are responsible for developing the policies and plans, training, supervision, monitoring the TB programme, and coordinating with other partners supporting the TB programme. CENAT also houses a Referral Chest Hospital with 130 beds and the National TB Reference Laboratory (NTRL).

**Provincial level:** Every province has a Provincial TB Medical Supervisor, in charge of the TB control activities in the province, and a TB Laboratory Supervisor, appointed by the Provincial Health Director. They are responsible for all TB services in the provinces, especially for planning, training, coordination, resource mobilization within the province and regular supervision of the ODs, TB microscopy centres (MC) and health centres.

**Operational District (OD) level:** Every OD has an OD TB Supervisor. His major responsibilities are to maintain the OD TB registry, planning, training and coordination and to conduct supervision to the health centers every month. ODs have referral hospitals, which have TB units with beds, a few TB staff and TB microscopy centres for smear diagnosis. Some ODs also have former district hospitals that have TB units and MCs. In total, there are around 210 microscopy centers in the country.

**Health Center level:** DOTS in the health centres are implemented by cross-trained general health workers. Usually, at least two workers in each health center (HC) receive three-day training on DOTS, including that on smear-making. They are designated as TB health workers at HC level. Over 10% of all health centers (most of them are former district hospital) have TB laboratories. These HCs are staffed with three to four TB health workers including at least one responsible for microscopy work

**Laboratory network:** The National TB Reference Laboratory (NTRL), under the NTP and located within the same premises as the CENAT has about 16 staff, equipped with culture and drug sensitivity testing facilities, and is responsible for planning, training and supervision of TB laboratory services. It is also responsible for External Quality Assurance (EQA) of sputum microscopy services which is provided through a network of 210 microscopy centres covering the entire country. In addition to the NTRL, two provincial TB microscopy centres (at Battambang and Kampong Cham) perform TB cultures.

The NTP has mobilised support from a number of development partners for financial and technical assistance as well as for implementation of activities. Through Community DOTS (C-DOTS) and Public-Private Mix (PPM) initiatives, a network of community volunteers (usually members of Village Health Support Groups) as well as private health care providers have been engaged to refer TB suspects to public health facilities and to serve as treatment observers (DOT Watchers) for patients in their own communities.

### 3. THE NATIONAL TB PROGRAMME AND ITS ACHIEVEMENTS

In 1994, the Ministry of Health adopted the WHO recommended Directly Observed Treatment, Short-course (DOTS) strategy, hailed as one of the most cost-effective health interventions for developing countries. The National Committee for TB control was established a year later, honourably headed by the Prime Minister, clearly demonstrating the political commitment from the government.

During the past 15 years, the NTP was able to accomplish remarkable achievements with the strong support of its partners. 100% coverage of DOTS services at health center level was attained by the end of 2004; since 1995 the NTP has been able to maintain a high cure rate of over 85%. The programme attained the 70% case detection rate by 2005 as planned. Though the case detection rate of smear positive TB cases has slightly declined since then, the overall number of TB cases continues to increase, partly because of increased focus and capacity for diagnosing smear negative TB (18,892 in 2000, 36,121 in 2005 and 40,199 in 2009). In 2009, the NTP achieved a case detection rate of 62% for new smear positive cases and a treatment success rate of 94%. The treatment success rate has been sustained above 90% for the past 13 years.

Other achievements by program components are summarised below:

**Community DOTS (C-DOTS):** Introduced in 2002 as a pilot project, C-DOTS was expanded gradually to cover more than 70% of the health centres by 2009. C-DOTS project was evaluated in 2008 and was found to have met its main objective of improving access of TB patients to DOTS by employing community volunteers to provide DOT to patients within their communities. Additionally, community volunteers play an important role in increasing awareness about TB, identifying and referring TB suspects to the health centres, thereby promoting early case detection.

**TB-HIV:** Having started in 2003, good progress has been made in expanding TB/HIV collaborative activities to cover 74 of 77 operational districts in 2009. The fourth National Sero-prevalence Survey showed a further decline in HIV prevalence among TB patients from 11.8% in 2003 to 6.3% in 2009. The uptake of HIV testing among TB patients reached more than 70% and provision of OI/ART services for co-infected patients showed improvement. Additional initiatives to reduce the burden of TB among PLHA have begun with the development of TB-HIV clinical guidelines, the revision of National TB/HIV framework, and the standard operating procedures (SOP) for the three I's strategy ((Intensified TB case-finding among PLHA, Isoniazid Preventive therapy (IPT), and Infection control).

**Public-Private Mix-DOTS (PPM-DOTS):** In Cambodia, the PPM-DOTS model involves referral of suspected TB cases by private providers (mainly pharmacies, cabinets and clinics) to public health facilities for diagnosis and treatment. By 2009, this was implemented in 39 ODs of 11 provinces. PPM-DOTS has contributed to the case detection rate of the NTP and in restricting the sale of anti-TB drugs in private pharmacies, thereby contributing to preventing the spread of MDR-TB.

**TB in Congregate settings:** In recent years, NTP has focussed its activities on congregate settings such as prisons and garment factories. Standard Operating Procedures for the management of TB in prisons is under development. By 2009, with support from partners, 9 out of the 26 prisons, were providing TB services. Activities aimed at increasing awareness on TB, referrals for testing of those reporting with TB symptoms. The provision for DOT in the workplace are ongoing in 16 garment factories.

**Childhood TB.** NTP has initiated activities to address TB in children. The first stand-alone national guidelines for childhood TB was developed in 2008 and some trainings have been conducted. Pilot projects are being implemented in 6 ODs to strengthen the management of childhood TB by building capacity and providing adequate supplies (PPD, X-ray films) for diagnosis of childhood TB, streamlining the referral process, promoting systematic contact tracing and intensified supportive supervision. The proportion of children notified under the NTP has increased from around 1% in 2000 to nearly 10 % of the total cases notified in 2009. Since 2008, pediatric formulation of anti-TB drugs has been made available through a grant from the Global Drug Facility (GDF).

**MDR-TB:** Since 2006, pilot projects on MDR-TB, approved by the Green Light Committee (GLC) were being implemented by NGO partners in collaboration with the CENAT. The CENAT was recently approved by the GLC for procurement of concessionally priced second line drugs. From 2011, the CENAT, with support from its partners will embark on the National MDR-TB project to implement the programmatic management of drug-resistant TB in the country.

**Improving diagnosis:** Quarterly external quality assurance (EQA) activities for sputum microscopy have expanded gradually to reach 100% by 2009, and along with that, the performance of the microscopy centres has gradually improved. Diagnostic committees for smear negative TB are functioning in 10 out of 24 provinces to improve the quality of diagnosing smear negative and extra-pulmonary cases. Fluorescent microscopy has been introduced in seven labs, and the three culture labs are already performing liquid cultures with plans to also expand to another two culture labs by 2015. X-Ray services have become more widely available, and several trainings were conducted to build capacity for taking good X-rays as well as for reading them.

**Drug management:** NTP successfully switched to the use of fixed dose combination drugs in 2008. The programme has also been successful in ensuring uninterrupted supply of good quality drugs through direct procurement from WHO pre-qualified suppliers as well as grants from the Global Drug Facility. No “stock-out” has been reported for many years now.

The many achievements of the NTP were made possible due to the good collaboration and strong support of the partners. These include local authorities and communities, WHO, JICA, USAID, US-CDC, CIDA, World Bank, RIT/JATA, WHO, TBCAP, MSF, PATH, FHI, CHC, CRS, SCA, PFHAD, RHAC, RACHA, URC, SHCH, HEAD, AHEAD, VOR-ORT and Ponleu Komar.etc.

## 4. ISSUES AND CHALLENGES

Considering the continued high burden of TB in the country, the main challenge is to consolidate, sustain and further improve the TB program for many more years, if not decades. This includes political commitment for continued priority for TB control, mobilising adequate financial resources and a competent and motivated work force to implement the programme over the coming years. Some of the specific technical challenges are summarised below:

**Community DOTS (C-DOTS):** As C-DOTS is assisted by around 10 partners, coordination and resources to maintain the activities among these partners are of critical importance.

**TB/HIV co-infection:** Despite the decline, TB/HIV co-infection continues to be high with 6.4% of TB patients testing positive for HIV in the 2009 survey. Intensified case-finding among PLHA, and INH preventive therapy are not widely provided in HIV services. In 2010, 20 OI/ART sites implemented 3Is activities. Diagnosing TB among PLHA remains difficult because of limited access to culture facilities, capacity for clinical management of TB/HIV co-infected patients remains limited, and linkages between the TB and HIV programmes needs to be strengthened further. Information system related to TB/HIV requires also further strengthening.

**PPM-DOTS:** Though promising, PPM-DOTS has not contributed to the case detection as anticipated. Other challenges include the high proportion of referred TB suspects that are lost during the referral process, and the need to expand at least to all urban areas, particularly for targeting pharmacies to effectively restrict the sales of anti-TB drugs.

**Laboratory capacity:** The management and technical capacity of the NTRL needs to be further strengthened to cope with demands for introducing new diagnostic technologies while addressing needs for ensuring quality of current services such as sputum microscopy, culture and DST services. Bio-safety of labs, particularly for those performing culture and DST needs to be ensured.

**Diagnostic issues:** Capacity for diagnosis of smear negative TB remains limited. Availability and quality of X-ray services needs further enhancement and health workers related to this diagnostic activities need to be more motivated.

**MDR-TB:** The second National Drug Resistance Survey (NDRS) 2006-2007 indicated an increase in the number of MDR-TB cases. Current projects are still limited to 9 MDR-TB treatment sites and second-line DST is not yet available in the country limiting the option for individualised treatment regimen.

**Infection Control (IC):** Following the development of general infection control guidelines by the MoH in 2010, the NTP has begun developing SOPs, implementation plans and training for TB-Infection control that are aligned with MoH guidelines as well as the global guidelines. A number of the health facilities, particularly TB (including MDR-TB) and HIV settings need to be renovated to minimise the risk of TB transmission. Orientation and training on TB-IC will be needed to increase awareness and prioritise implementation of TB-IC measures.

**TB in prisons:** Several surveys as well as routine data from ongoing activities indicate the high prevalence of TB in prisons as compared to the general population. Most of the prisons are yet to provide TB services; prison facilities do not have the infrastructure to separate infectious TB patients, thus there is likelihood of ongoing TB transmission. The SOP for TB in prisons is under development and will provide clear guidance on the way forward, including the role and responsibilities of concerned stakeholders.

**Childhood TB:** Diagnosis of childhood TB is possible only at the referral hospital requiring time away from work for parents and incurring transportation cost. Systematic contact tracing, including IPT for eligible children, is resource intensive as it requires outreach work, and the benefit of taking a 6-month course of treatment for a healthy child is not always understood making it difficult to implement on a wide scale.

## **5. PURPOSE OF THE STRATEGIC PLAN**

The main objective of the strategic plan is to define the priority strategic activities of the NTP during the next five years based on the strategic directions stated in the National Health Policies and Strategies for TB Control in the Kingdom of Cambodia 2011-15 issued by MoH in July 2009. In general, the activities are described in broad terms, where applicable specific activities with targets are mentioned. This strategic plan must be translated to annual action plan for TB control at national, provincial and district levels, which include health center and community levels.



## II. STOP TB STRATEGY and GLOBAL PLAN TO STOP TB

The Stop TB Strategy is the approach recommended by WHO to reduce the burden of TB in line with the global targets set for 2015. The strategy is summarized in **TABLE 1** (5) The Stop TB Partnership's Global Plan to Stop TB 2006-2015 sets out the scale at which the interventions included in the Stop TB Strategy need to be implemented to achieve the 2015 targets.

**TABLE 1: The Stop TB Strategy at a glance**

<b>VISION</b>
A TB-free world
<b>GOAL</b>
To dramatically reduce the global burden of TB by 2015 in line with the Millennium Development Goals and the Stop TB Partnership targets
<b>OBJECTIVES</b>
<ul style="list-style-type: none"> <li>• Achieve universal access to quality diagnosis and patient-centred treatment</li> <li>• Reduce the human suffering and socioeconomic burden associated with TB</li> <li>• Protect vulnerable populations from TB, TB/HIV and drug-resistant TB</li> <li>• Support development of new tools and enable their timely and effective use</li> <li>• Protect and promote human rights in TB prevention, care and control</li> </ul>
<b>TARGETS</b>
<ul style="list-style-type: none"> <li>• MDG 6, Target 6.C: Halt and begin to reverse the incidence of TB by 2015</li> <li>• Targets linked to the MDGs and endorsed by Stop TB Partnership:             <ul style="list-style-type: none"> <li>- 2015: reduce prevalence of and deaths due to TB by 50%</li> <li>- 2050: eliminate TB as a public health problem</li> </ul> </li> </ul>
<b>COMPONENTS</b>
<p><b>1. Pursue high-quality DOTS expansion and enhancement</b></p> <ol style="list-style-type: none"> <li>a. Secure political commitment, with adequate and sustained financing</li> <li>b. Ensure early case detection, and diagnosis through quality-assured bacteriology</li> <li>c. Provide standardized treatment with supervision, and patient support</li> <li>d. Ensure effective drug supply and management</li> <li>e. Monitor and evaluate performance and impact</li> </ol> <p><b>2. Address TB/HIV, MDR-TB, and the needs of poor and vulnerable populations</b></p> <ol style="list-style-type: none"> <li>a. Scale-up collaborative TB/HIV activities</li> <li>b. Scale-up prevention and management of multidrug-resistant TB (MDR-TB)</li> <li>c. Address the needs of TB contacts, and of poor and vulnerable populations</li> </ol> <p><b>3. Contribute to health system strengthening based on primary health care</b></p> <ol style="list-style-type: none"> <li>a. Help improve health policies, human resource development, financing, supplies, service delivery, and information</li> <li>b. Strengthen infection control in health services, other congregate settings and households</li> <li>c. Upgrade laboratory networks, and implement the Practical Approach to Lung Health (PAL)</li> </ol>

d. Adapt successful approaches from other fields and sectors, and foster action on the social determinants of health

**4. Engage all care providers**

- a. Involve all public, voluntary, corporate and private providers through Public-Private Mix (PPM) approaches
- b. Promote use of the International Standards for Tuberculosis Care (ISTC)

**5. Empower people with TB, and communities through partnership**

- a. Pursue advocacy, communication and social mobilization
- b. Foster community participation in TB care, prevention and health promotion
- c. Promote use of the Patients' Charter for Tuberculosis Care

**6. Enable and promote research**

- a. Conduct programme-based operational research
- b. Advocate for and participate in research to develop new diagnostics, drugs and vaccines

### **III. NATIONAL HEALTH POLICIES AND STRATEGIES FOR TB CONTROL 2011-2015**

This Strategic Plan has been developed to complement the National Health Policies and Strategies for Tuberculosis Control 2011-2015 which is aligned to the wider overall National Health Strategic Plan 2008-2015, as well as the Stop TB Global Strategies and Plan 2006-2015. It is the third paper of its kind formulated by the NTP in consultation with its partners.

The National Health Policies and Strategies for Tuberculosis Control provides policy and strategic directions of the Ministry of Health (MoH) concerning the control of TB in the kingdom, covering the period from 2011 to 2015 to contribute to the attainment of the goals and objectives of the overall National Health Strategic Plan, and thereby contribute to attaining MDG targets by 2015. This 5-year document covers seven policy statements and about 50 strategic directions. The seven policy statements include:

- The National Center for Tuberculosis and Leprosy Control (CENAT) assumes overall responsibility for the National Tuberculosis Control Program (NTP) to be implemented countrywide through the health care delivery system in Cambodia.

- The National TB Control Program ensures the existence of clear and practical Policies, Strategies, Plans and guidelines for TB control.

- The National TB Control Program ensures, according to the national protocol and guidelines and in line with the International Standard of Tuberculosis Care, good quality, diagnostic, curative, preventive and promotive TB services, which are accessible to the community and free of charge.

- The Ministry of Health will seek to ensure that financial inputs are fully mobilized from all sources for TB control activities and used effectively and efficiently in TB control, and that there is uninterrupted supply of good quality drugs 1<sup>st</sup> and second line anti-TB drugs, TB diagnosis and laboratory equipment and supplies.

- The Ministry of Health will seek to ensure that priority is given to investment in human and material resources for TB control activities.

- The NTP will strengthen the information system and promote research activities in order to better manage the program. Research topics include the epidemiological patterns of the disease, health-seeking behaviour and other issues related to TB in Cambodia.

- Both internal and external partnership should be seen as a core element in achieving NTP objectives. All resources should be mobilized and coordinated in such a way that would improve TB control activities at all levels within and outside the health care system.

## **IV. STRATEGIC PLAN FOR TB CONTROL 2011-2015**

### **1. GOAL**

The main goal of the NTP is to contribute to improving the health of the Cambodian people in order to contribute to socio-economic development and poverty reduction in Cambodia by reducing the morbidity and the mortality due to tuberculosis.

The overall objectives for 2011-2015 are to ensure equity and universal access to quality TB services; maintain a high cure rate of more than 85%; and reduce the prevalence of TB and death due to tuberculosis by 50 % by 2015 relative to the 1990 figures, in order to contribute to attaining the Millennium Development Goals (MDG).

### **2. OBJECTIVES**

Objective 1. To consolidate and maintain high quality TB services nationwide in order to achieve universal access to quality diagnosis and treatment.

Objective 2. To improve and ensure equitable access to TB services focusing on the poor and community participation.

Objective 3. To respond to TB/HIV co-infection, drug-resistant TB, childhood TB and to other high risk groups and challenges.

Objective 4. To ensure adequate resources and strengthening coordination for TB control and contribute to health system strengthening.

Objective 5. To strengthen Monitoring and Evaluation System and to promote research activities for TB control

### **3. STRATEGIC ACTIVITIES AND EXPECTED RESULTS**

#### **Objective 1. Consolidate and maintain high- quality TB services nationwide**

##### ***Expected results***

- Capacity and quality of diagnosis for TB assured and increase of TB cases notified.
- Improved care and support to TB patients of all forms of TB, including pulmonary smear negative TB.

##### ***Components:***

##### **(i) Improving TB diagnosis and notification**

- Promote early case detection by using various tools and approaches which include active case finding and contact investigation in communities and among high risk groups.
- Strengthen TB laboratory for case detection through quality-assured bacteriology, including culture and DST; adoption of globally recommended new diagnostic tools/methods such as LED Fluorescence Microscopy, liquid cultures, line probe assays and Xpert MTB/RIF .

- Increase number of Microscopy Centres to account for population growth in order to maintain adequate population coverage.
- Expand culture laboratories from the existing 3 to at least 5 designated culture facilities.
- Expand the use of LED Fluorescence Microscopy to all provinces.
- Provide NTRL with the capability to perform quality assured DST services for both first line anti-TB drugs and if appropriate for second line anti-TB drugs.
- Ensure all TB laboratories in the country will meet required bio-safety levels/requirement depending on the services performed, including renovation of the NTRL to meet appropriate Bio safety level requirement; and test results are assured through implementation of quality assurance programmes.
- Concerning EQA for sputum microscopy, it is expected by 2015, at least 90% of TB labs will perform adequately according to national standards. In addition, quality assurance programmes for new diagnostics will be implemented.
- Strengthen linkages between the health centres and TB microscopy laboratories and designated culture laboratories, as well as between designated culture laboratories and the National Reference laboratory. MCs will be clustered to link with each designated TB culture laboratory. The referral network for sample collection, transportation, delivery of test results for all laboratory services will also be strengthened.
- Scale up the improved diagnostic capacity for smear negative and extra-pulmonary TB to cover the entire country through trainings, establishments of TB diagnostic committees, implementation of SOPs, and provision of adequate equipments and supplies.
- Invest in capacity building to provide quality assured radiography services nationwide, given the importance of chest radiography to assist in diagnosis of smear negative TB cases, including TB/HIV co-infected cases.
- Explore the possibility of introducing digital X-rays that could be stored and used for providing on the job training during supervision, and also sending X-rays by email to experts at CENAT for consultation, when required.

**(ii) Patient-centred care and support**

- Engage with TB patients to assess their needs and jointly plan provisions for their treatment prioritising the convenience of patients, and giving emphasis on the provision of DOT at health center and in the community.
- Make services “patient-friendly” by considering the needs of patients including opening hours of TB services, turn-around time for results, waiting time, distances to be travelled, improved inter-personal communication skills of health workers etc

- Provide incentives and enablers to TB patients, which include nutritional/food support, transport vouchers, other social support, while carefully considering the impact of such initiatives and its sustainability.
- Promote the use of Patients Charter, identify champions among ex-TB patients and encourage utilization of their services as DOT watchers, community educators, social mobilization activities etc.
- Promote the use of physiotherapy to patients needing these services, such as those with poor pulmonary functions as sequelae of TB, as a supplement to curative care at hospital level.
- Educate patients to promptly identify and report adverse drug reactions, and build capacity of health centre staff to manage common side effects

## **Objective 2. Improve and ensure equitable access to TB services focusing on the poor and community participation**

### **Expected results:**

- Increased utilization of TB services by the poor population
- TB services more accessible to the community
- More involvement of non-government health care workers in TB control
- Improved ACSM activities, contributing to more case identification and better care.

### **Components:**

#### **(i) TB and poverty**

- Ensure free of charge services for TB diagnosis and treatment in public health services by reinforcing the implementation of the policies and strategies, through such activities as dissemination workshops, issue of legislature papers like Prakas (declaration) or circulars, supporting logistics and incentives.
- Engage in broader initiatives at the MoH level such as health equity funds and other health financing schemes, pursue policies that reduce patient's "out-of-pocket" spending on health care and related costs for additional services beyond those provided free by the NTP.
- Situation analysis to identify barriers in accessing to TB services, including patient and health system delays. Design and implement interventions to address identified barriers, particularly targeting the poor.
- Explore possibilities to embark on innovative and sustainable approaches for pro-poor DOTS, including through operational research.

#### **(ii) Community-DOTS (C-DOTS).**

- Expand and sustain community DOTS to cover at least 80% based on the national Community DOTS Guidelines by collaborating with development partners, and mobilising community members like community leaders, village health support group members (VHSG), and former TB patients to provide C-DOTS services.
- Undertake studies to assess and document C-DOTS implementation, including the role of C-DOTS in reducing diagnostic delays, improved treatment outcomes and case detection, improved geographical and economic access, increased awareness and reduced stigma in the community.

- Strengthen the NTP referral system both horizontally and vertically, including linkages between C-DOTS and PPM-DOTS as well as other priority areas within the NTP network, which encompass the link between national and referral hospitals to the health centres.
- Promote integrated management of C-DOTS with other specific interventions at the HC and community level, including Childhood TB and MDR-TB, to leverage resources and improve cost-efficiency.

### **(iii) PPM and ISTC**

- Disseminate national PPM-DOTS guidelines to all health care providers (public and private), organise training and workshops, and oversee delivery of services through a mix of providers based on the local context.
- Strengthen the technical working group for PPM-DOTS and C-DOTS, with representation from NGOs and other partners implementing or supporting these initiatives, to regularly review and coordinate activities.
- Further promote partnership with private sector, NGOs, IOs and other government institutions for TB control, including the new concept of TB in workplace (corporate sector).
- Engage with professional societies in Cambodia, including Cambodia Medical Council, Cambodia Medical Association and Pharmacist Association of Cambodia to promote the use of the International Standards for TB Care (ISTC), and to monitor adoption of the Standards and restrict the sales of anti-TB drugs, particularly by members of these societies.
- Review initiatives in garment factories and other workplaces, to document lessons learnt and inform future direction.

### **(iv) Advocacy, Communication and Social Mobilization (ACSM)**

- Develop a strategic plan for ACSM and implement operational plans tailored to meet specific objectives and target audiences considering relevance to the local context.
- Promote advocacy activities, especially through the celebrations of World TB Day at all levels as well as during some events such as conferences of various fields including NTP meetings/workshops.
- Enhance TB health education through both mass media and interpersonal health education like peer-group education, health education through health facility staff at schools, pagodas, and communities .
- Improve communication between patients and service providers.
- Collate available information or conduct KAP surveys to identify challenges, priority populations and key behaviour targets to design ACSM strategies.
- Engage with community and religious leaders (e.g. monks, *achars* and *nuns*), civil societies, faith based organizations, schools and work places, former TB patients etc

to generate awareness and build consensus and social commitment to fight stigma and eliminate TB as a public health threat.

- Monitor and evaluate the outcome or impact of ACSM activities including through KAP surveys.

### **Objective 3. To respond to TB/HIV co-infection, drug-resistant TB, childhood TB and other high risk groups and challenges**

#### ***Expected results:***

- Increased uptake in HIV testing of TB patients and uptake of ART for TB/HIV patients
- Nationwide coverage for testing and treatment of MDR-TB patients
- Improved access and care of childhood TB
- Provision of TB services in all prisons
- All health facilities implement appropriate TB-Infection Control measures

#### ***Components:***

##### **(i) TB/HIV co-infection**

- Expand collaborative TB/HIV activities to the whole country in partnership with NCHADS and other partners, particularly for implementation of the revised framework for TB/HIV and the recently developed SOP for the Three I's Strategy (Intensified case finding, INH preventive therapy, and Infection control).
- Strengthen linkages with the HIV/AIDS programme to increase the uptake of HIV testing among TB patients to reach more than 80% by 2015.
- Promote the uptake of ART to all identified TB/HIV patients.
- Provide for TB/HIV co-infected patients to be channelled into the continuum of care/home-based care services so they may avail of OI/ART services and peer group and community support.
- Build staff capacity on TB/HIV through training and re-training on both TB/HIV implementation and clinical skills.
- Strengthen TB/HIV monitoring and evaluation systems to improve quality of data. Encourage quarterly data triangulation at OD level between OD register and OI ART register and advocate for adoption of standardized TB/HIV indicators reporting.
- Continue with periodic surveys of HIV prevalence among TB patients to monitor the situation and impact of TB/HIV collaborative activities every two to three years.

##### **(ii) Multi-drug resistant TB**

- Start the national programmatic management of drug-resistant TB (PMDT) from 2011, based on the ongoing pilots and strategically formulated PMDT plan, with the aim of achieving the country wide coverage with at least 18 treatment sites by 2015.
- Designate the number of labs for culture and DST services for grouped specialised MDR-TB sites to ensure quality.



- Strengthen the referral systems for patients, transportation of diagnostic specimens, drugs and other logistics, to achieve this.
- Secure adequate resources for management of drug-resistant TB including for laboratory services, second line drugs, management of side effects, patient support, and to implement appropriate infection control measures.
- Collaborate with in-country partners as well as global partners such as the Green Light Committee and Supra-National Reference Laboratory network to avail of technical assistance, concessionally priced second line drugs, and assure quality of services.
- Coordinate the PMDT with other activities, particularly with C-DOTS for identification and referral of MDR-TB suspects and community based management of cases with the support of community volunteers.

**(iii) Childhood TB**

- Mainstream the diagnosis and treatment of children with TB as part of routine NTP activities, including community-based screening and management of childhood TB , TB/HIV, and MDR-TB.
- Include childhood TB in regular supervision, and secure adequate supplies including tuberculin skin test (TST) and paediatric formulation of TB drugs.
- Establish services and build staff capacity to address specialised expertise needed for the diagnosis and treatment of childhood TB.
- Strengthen the referral system from the Health Centre to the Referral Hospital, which may include support for paediatric TB suspects and accompanied persons to access TB diagnosis and treatment services.
- Conduct systematic contact tracing and investigation of Child TB contacts ,especially children who are household contacts of TB cases, to identify those requiring TB treatment and for the others to receive IPT, particularly children below five years of age.
- Collaborate with other national programmes and paediatric hospitals in both public and private sector, to strengthen the management of TB in children.
- Promote BCG vaccination to be delivered to all children under the national immunization program.

**(iv) Other high risk groups**

- Disseminate the SOP for providing TB services in prisons, factories and other congregate settings, which also addresses TB-Infection Control issues given the high risk of TB transmission in such settings.
- Evaluate existing initiatives in prisons to document lessons learnt and inform future direction.

- Collaborate with the Ministry of Interior and partners to expand TB services in prisons. Expand current activities to cover at least 18 prisons and sustain these activities at least through this plan period.
- Conduct situational analysis and studies to identify high risk groups/populations and determine the barriers which prevent access to TB control.
- Determine the outcome and impact of these activities and develop the most appropriate ways for delivering such services in tandem with ongoing initiatives.
- Promote case finding, including active case finding among identified high risk groups and populations. This could include urban poor populations, migrants, smokers, diabetics, old age, children who are close contacts of infectious TB patients, HIV positive individuals, those in congregate settings, including orphanage.

**(v) TB Infection control (IC) in health facilities, congregate settings and households**

- Develop and implement SOPs and plans for TB-IC aligned with policies and guidelines on general infection control from the Ministry of Health as well as TB-IC global guidelines.
- Organise sensitization workshops and trainings to build commitment and capacity for putting in place necessary measures for TB-IC in health care facilities and congregate settings.
- Conduct facility assessments; develop and implement TB-IC implementation to provide safe working environment for health staff and patients availing of health services.
- Use appropriate IC control measures including managerial, administrative environmental and individual interventions to address IC problems for each setting. These include interventions in health facilities, congregate setting and communities
- Secure adequate resources to undertake necessary renovations, provide equipments and supplies, to promote and provide safe working environment for health care staff and patients.
- Design and implement effective communication strategies targeting health care workers, patients and their families, and visitors of hospitals to raise awareness and take measures to protect themselves and reduce the risk of TB transmission in their environment.

**(vi) Practical Approach to Lung Health (PAL)**

- Mobilize technical and financial resources to conduct a situational analysis, develop an implementation plan.
- Implement pilot plan to demonstrate the technical and operational feasibility of Practical Approach to Lung Health and its contribution to the national TB programme. Develop and implement scale-up plans if determined to be successful and feasible.

## **Objective 4. To ensure adequate resources and strengthening coordination for TB control and contribute to health system strengthening.**

### **Expected results:**

- Adequate resources including human, material, drugs and financial for full implementation of this Strategic Plan
- Strengthened programme leadership, and collaboration with partners
- Planning and implementation of the NTP activities aligned and coordinated within the overall health system

### **Components:**

#### **(i) Political commitment and resource mobilisation:**

- Advocacy with government leaders and partners in the country to maintain TB control as a high priority, mobilize greater engagement of other government institutions, professional and civil societies in TB control.
- Advocate with concerned national authorities to sustain and increase domestic allocations to the budget of the TB programme and to ensure adequate staff are assigned for implementing the program.
- Engage with potential donors to widen the donor base and advocate for continued and increased funding from existing donors.
- Apply for fund from various donors, including future rounds of Global Fund to secure adequate funding for full implementation of this plan.

#### **(ii). Policies, Plans and Guidelines**

- Develop and /or revise and disseminate national health policies and strategies, plans and guidelines for TB control through routine channels and other forums, such as meetings and workshops.
- Develop a 5-year strategic plan for strengthening the National TB Reference Laboratory (NRL) and all the other TB laboratories in the NTP network.
- Develop or revise, in collaboration with the National Center for HIV/AIDS, Dermatology, and STD (NCHADS) and partners concerned, specific strategies and guidelines, etc, for addressing TB/HIV issues, and to formulate and implement action plan to translate these strategies and guidelines into action.
- Revise the technical guidelines/SOPs , including treatment protocols and training modules, when necessary.
- Develop annual action plan for TB control at central, provincial and district levels taking into account the changing situation and the practical needs and budget required as well as funding gap.

- Monitor closely and regularly evaluate the implementation of health policies and strategies, plan and guidelines for TB Control.
- Provide inputs concerning TB control into the plan and policy development of the overall health sector through active involvement with other partners.

**(iii). Procurement and supply management of First Line Drugs, Second Line Drugs, Lab reagents and other logistics**

- Ensure availability of quality-assured first and second line anti-TB drugs and other logistics that are quality-assured, in adequate quantities including buffer stocks.
- Maintain a buffer stock of 9 months requirement of first line drugs and TB lab reagents at the national level and 3 months buffer stock at OD level at all times.
- Maintain a buffer stock of 6 months requirement of second line drugs at the national level and 2 months buffer stock at OD level at all times.
- Utilize and collaborate existing mechanisms in the health system including other departments in the Ministry of Health such as the Department of Drugs Food and Cosmetics, the Central Medical Stores, National Laboratory for Quality Control of Drugs in order to strengthen pharmaceutical management of anti-TB drugs and other NTP related logistics.
- Implement a quality assurance plan for TB medicines in collaboration with other MoH departments and institutions, to ensure all first and second line anti-TB drugs used in the programme are included in the national essential medicine list and registered by the Department of Drugs and Food, Ministry of Health, if required.
- Build capacity of Provincial and OD TB supervisors to ensure correct ordering, storage, distribution, and use of anti-TB drugs in their areas of operation. Health personnel will ensure that TB drugs are used according to the national protocol and adhere to the rational use of drugs.

**(iv) Human Resource Development**

- Formulate HR planning for TB control with assessment of current HR situation to identify gaps both in terms of numbers, distribution, and competency of staff for implementing the NTP, including for new or additional initiatives, considering additional support that is currently available through NGOs and other partners, taking into account sustainability.
- Build capacity of TB health workers to perform their functions effectively and provide opportunities for staff development and continuing training, including through international training, study visits, conferences and meetings.
- Explore appropriate measures to address staff motivation, including both monetary and non-monetary incentives like opportunity for individual capacity development, providing safe workplaces, and good working conditions etc.
- Include training on the national TB programme, and the International Standards for TB Care in the curriculum of health care professional trainings, including that for doctors, nurses, pharmacist, laboratory technicians etc.

#### **(v) TB program leadership and coordination:**

- Strengthen CENAT further to provide overall stewardship for TB control activities in the country, working together in close coordination with partners.
- Mobilise technical assistance, both long and short-term to assist and build capacity of CENAT to carry out its functions.
- Strengthen existing mechanisms for partnerships and collaboration by organising regular meetings of the Sub-Technical Working Group for TB Control ( Inter-Agency Coordination Committee) and the various Technical Working Groups. Establish TWG for additional programme areas as needed.
- Seek possibility of creating a national Stop TB partnership.
- Improve coordination of TB control activities at the province and OD level, including the strengthening or establishment of coordinating mechanism.
- Link up existing coordination mechanism in the country to the global TBTEAM initiative as means to seek and coordinate technical assistance missions in the country.
- Collaborate with relevant ministries, programmes and departments including the Department of Drugs and Food, Central Medical Stores, Department of Planning, NCHADS, Department of Health Promotion, Ministry of Interior, Ministry of Education, Ministry of National Defence, Ministry of Religion, and others to implement cross-cutting activities identified in this plan.
- Encourage incorporation of a sustainability plan for new initiatives that are likely to be part of NTP activities at a later stage. Particularly those implemented in project mode with significant additional resources.

#### **(vi) Contribute to Health System Strengthening**

Consider opportunities to strengthen health systems in all aspects and levels of programme planning, implementation and monitoring. Some of the TB technical focus areas, where this is more likely to be relevant include:

- Information: Strengthen TB data collection, analysis, and reporting systems; build data management capacity at all levels and thereby contribute to strengthening of the overall health information systems.
- Service delivery:
  - Quality of care: Coordination with Quality Improvement initiatives to improve quality of TB services
  - Coordinate TB-Infection control and PAL to contribute to HSS.
  - Promote the implementation of C-DOTS to contribute to Community System Strengthening .
  - Diagnostic services: construction/renovation and equipments to improve general supplies, implement lab and X-ray QA system for NTP to also strengthen overall diagnostic services in the facilities.

- Medical products and technologies: Coordinate and contribute to MoH initiatives related to pharmacovigilance, rational use of drugs, quality assurance.
- Financing: Link with MoH's health financing schemes such as Health Equity Funds, to improve financial risk protection and coverage of TB patients.
- Health workforce: Coordination with HRD department and Personnel department concerning specific activities such as HRD plan for TB control, training of TB health workers and related staff , appropriate incentives , staff motivation and distribution as well as retention of staff.
- Leadership and governance: Coordinate planning, policy-making, and management within the overall framework of the National Health Strategic Plan.
- Infrastructure: contribute to health infrastructure development of the general health services, which include renovation and construction TB/MDR-TB wards as well as TB laboratory facilities.

### **Objective 5. To strengthen Monitoring and Evaluation System and to promote research activities for TB control**

#### ***Expected results:***

- Reliable recording and reporting system that is timely, complete, and of good quality
- Enhanced capacity of the NTP for conducting operational research
- Surveys conducted to document the impact of the NTP

#### ***Components:***

##### **(i) TB program management and supervision**

- Organize regular programme reviews including through annual TB conference, quarterly M&E workshops, meetings etc
- Conduct regular facilitative supervision from national, provincial and OD levels as an integral part of support to all key elements of the NTP strategy that also acts as an extension of training and a process for increasing the proficiency and motivation of health workers.

##### **(ii) M&E system and, impact measurement**

- Revise the R&R system to capture information on all aspects of the TB program including PPM, C-DOTS, MDR-TB etc. Enhance information technology (IT) including the use of appropriate database, and use of electronic system.
- Build capacity for data management and promote the analysis, interpretation and use of TB health information to improve program performance.
- Revised tools for program M&E at all levels including introduction of a peer-review process for programme evaluation and on-the-job training.
- Continue to publish and disseminate quarterly and annual NTP reports and other relevant information
- Conduct NTP Joint program review in 2012

### **(iii) Research Activities**

- Conduct 3<sup>rd</sup> National TB disease prevalence survey in 2015.
- Conduct 3<sup>rd</sup> national drug resistance surveillance 2014.
- Organize survey of HIV prevalence among TB patients every two to three years.
- Identify priority areas for operational research so that all research activities are aligned to priorities of the NTP with a view to provide information for evidence-based policy decisions, and lead to improvements in programme implementation.
- Some topics that could be considered for operational research include (i) diagnostic capacity improvement for smear negative TB (ii) TB/HIV: performance of the new diagnostic algorithm for intensified case finding, including IPT; and implementation of Option 2 ,i.e taking and sending blood for HIV testing (iii) health-seeking behaviour of TB patients (iv) design, implement and evaluate appropriate pro-poor strategies (v), active case finding among high-risk groups (vi) contact tracing/investigation, including IPT for children: feasibility and yield (vii) review accuracy of categorization of TB patients (viii) High risk groups and populations: to better focus and prioritise more vulnerable groups (ix) TB and tobacco.
- Build local capacity in research activities through training workshops and link with institutions/organizations that could provide ongoing technical support to design the protocol; in data collection, management and analysis; and its dissemination and/or publication.

## V. MONITORING AND EVALUATION

A number of assumptions should be taken into consideration concerning the implementation of this strategic plan. Since NTP relies strongly on general health personnel and service utilization, the assumption that there will not be much change of the overall health system organization and staffing during the plan period is of critical importance. Another assumption is that the government and major partners will continue to support NTP, particularly because the program will rely to a great extent on external support .

This strategic plan requires close monitoring and evaluation. Regular monitoring of the plan implementation is paramount importance to ensure that activities are on the right track to obtaining objectives and targets. Based on monitoring and evaluation framework indicators, activities need to be closely monitored through appropriate mechanism. This include monthly and quarterly supervision, meeting and reports at the peripheral level as well quarterly monitoring , meeting and reports by and at the central level.

The strategic plan implementation should be annually evaluated based on main indicators set in the indicator framework for the plan and the annual plan of action (AOP). Midterm evaluation should be conducted in 2013. Corrections should be made so as to gear towards attaining objectives by 2015. End-period evaluation should be conducted in mid 2016 prior to the formulation of the next phase plan.

The core indicators and their targets concerning this strategic plan are summarized in the below table. It should be noted that the targets set for the plan may be revised based on the outcome of evaluations as well as on the revised epidemiological data.

<b>Indicators</b>	<b>Baseline (year)</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Population	13,395,683 (2008)	14,024,142	14,240,114	14,459,412	14,682,087	14,908,191
Prevalence of TB all forms (per 100,000 pop)	1,252 (1990)	669	657	645	635	626
TB mortality rate (per 100,000 pop)	175 (1990)	91	90	89	88	87
% of HC with C-DOTS	71% (2009)	80 %	>80 %	> 80 %	>80%	>80%
% of ODs with TB/HIV services	96% (2009)	100%	100%	100%	100%	100%
MDR-TB treatment sites	9 (2009)	11	12	14	16	16
Prison TB services	9 (2009)	11	15	18	> 18	>18
No. of TB cases of all forms notified *	39202 (2009)	39,800	39,900	40,000	40,100	40,200



Notification rate for all forms of TB	288 (2009)	284	280	277	273	270
No of smear positive TB cases notified	17,863	17,500	17,300	17,100	16,900	16,700
Notification rate for smear positive TB cases	131 (2009)	125	122	118	115	112
Cure rate	91% (2009)	> 85%	> 85%	> 85%	> 85%	> 85%
% of TB patients who had an HIV test result recorded in the TB register among total number of registered TB patients	71% (2009)	78%	79 %	80%	81%	82%
% of HIV TB patient received ARV	15% (2009)	60 %	64 %	68 %	72 %	80 %
No. of MDR-TB cases enrolled on second line anti-TB treatment**	39 (2009)	65	93	95	105	110
% of TB labs showing adequate performance in EQA for smear microscopy	60% (2008)	85%	85%	85%	85%	85%

\* These excludes failure, return after default and others cases, which account approximately 1000 cases per year requiring reflection in the drug needs.

\*\* These include confirmed and non-confirmed MDR-TB cases such as those with empirical treatment which require second line drugs.

## VI. RESOURCE NEEDS AND GAPS

The WHO- Stop TB Planning and Budgeting for TB Control tool was used to consolidate estimation of the costs of the Strategic Plan. The cost estimates presented here are relevant at the time of finalising the Plan. However, it should be emphasized that the process of developing a good strategic plan is iterative as new information becomes available or newer approaches are planned and implemented by the programme. This results in changes to the cost. It is planned to regularly update the the strategic plan, as well as its costing, over the period of the Plan. It can also provide a sound basis for developing annual operating plans as well.

An estimated budget of around 210 millions US \$ will be needed for the period from 2011 to 2015. The budget for HRD accounts for 25 %, health product and diagnostics about 20%, capacity building including TA approximately 19% , ACSM around 5% and the remaining is for other activities, which include information system, research etc. Community DOTS expansion will require additional resources.

There is an uncertainty in terms of budget availability for the five-year period, because some negotiations with donors and stakeholders as well as request to donors are taking place or planned to be organized. The estimated financial gap currently is about 75 %.

External resources come from the Global Fund, Japanese Government, JICA, WHO, USAID, WFP, CDC/GAP, TBCAP/TBCARE and other technical/financial partners including IOs and NGOs.

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