

Country Name	Improving the Capacity of the National TB Control Program through implementation of the 2nd National TB Prevalence Survey
Kingdom of Cambodia	

I. Project Outline

Background	<p>Cambodia was one of the 22 high Tuberculosis (TB) burden countries with the number of TB cases of 664 per 100,000 population which was the worst level in Asia (estimation by WHO in 2009). Cambodia made efforts on TB control through establishment of the National Center for Tuberculosis and Leprosy Control (CENAT). Japan had comprehensively supported their efforts through grant aid project to rehabilitate facilities and to provide equipment for CENAT and technical cooperation projects to strengthen capacity for TB control based on CENAT in order to enhance Directly Observed Treatment, Short course (DOTS), which is the TB control strategy recommended by the World Health Organization (WHO). However, there were remaining issues to conduct the 2nd National TB Prevalence Survey, which was scheduled in 2010, by their own capacity since the survey required large scale and high accuracy to collect data. Therefore, the government of Cambodia requested the government of Japan a technical cooperation project to support the entire process of the National TB Prevalence Survey (the Survey).</p>						
Objectives of the Project	<p>Through development of survey protocol and implementation of the Survey, and enhancement of diagnostic network of the National TB Control Program based on quality bacteriological examination, the project aimed at strengthening capacity of the National TB Control Program, there by contributing to reduction of TB morbidity and mortality in Cambodia.</p> <ol style="list-style-type: none"> Overall Goal: TB morbidity and mortality are reduced. Project Purpose: Capacity of the National TB Control Program is strengthened through implementation of the National TB Prevalence Survey. 						
Activities of the project	<ol style="list-style-type: none"> Project site: Whole country of Cambodia Main activities: 1) Development of the Survey Protocol and Survey Manuals and conducting field operation according to the Protocol, 2) Producing the Survey result, 3) Assessing and calibrating TB surveillance based on the Survey results, 4) Reviewing and revising the National TB Control Strategies, 5) Development of the training modules and delivery of trainings on testing and examination Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Japanese Side</p> <ol style="list-style-type: none"> Experts: 10 persons Acceptance of trainees in Japan: 6 persons Equipment: PCs, Portable X-ray Units, X-ray film Processor, Incubator, Electrical Generator, etc. Local Cost: Cost for the National TB Prevalence Survey </td> <td style="width: 50%; vertical-align: top;"> <p>Cambodia Side</p> <ol style="list-style-type: none"> Counterpart personnel: 71 persons Land and Facilities: Office spaces for the Japanese experts in CENAT, etc. Local cost: Cost for the National TB Prevalence Survey. </td> </tr> </table> 					<p>Japanese Side</p> <ol style="list-style-type: none"> Experts: 10 persons Acceptance of trainees in Japan: 6 persons Equipment: PCs, Portable X-ray Units, X-ray film Processor, Incubator, Electrical Generator, etc. Local Cost: Cost for the National TB Prevalence Survey 	<p>Cambodia Side</p> <ol style="list-style-type: none"> Counterpart personnel: 71 persons Land and Facilities: Office spaces for the Japanese experts in CENAT, etc. Local cost: Cost for the National TB Prevalence Survey.
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Ex-Ante Evaluation	2009	Project Period	January, 2010 to January, 2013	Project Cost	(Ex-ante) 350 million yen (Actual) 314 million yen		
Implementing Agency	National Center for Tuberculosis and Leprosy Control (CENAT), Ministry of Health (MoH)						
Cooperation Agency or Contract Agency in Japan	Japan Anti-Tuberculosis Association, The Research Institute of Tuberculosis						

II. Result of the Evaluation

1 Relevance
<p><Consistency with the Development Policy of Cambodia at the time of ex-ante evaluation and project completion></p> <p>The project was consistent with the Cambodia's development policies of, "the National Health Strategic Plan for Tuberculosis Control in the Kingdom of Cambodia (2006-2010, 2011-2015)" and "the National Health Policies and Strategies for Tuberculosis Control in the Kingdom of Cambodia (2006-2010, 2011-2015)", which prioritized "implementation of the National TB Prevalence Survey as one of the important strategies to achieve the National Tuberculosis Control Program (NTP)".</p> <p><Consistency with the Development Needs of Cambodia at the time of ex-ante evaluation and project completion ></p> <p>The project was consistent with the Cambodia's development needs to implement the National TB Prevalence Survey with higher degree of accuracy in order to make more effective TB control strategy based on reliable survey results.</p> <p><Consistency with Japan's ODA Policy at the time of ex-ante evaluation></p> <p>The project was consistent with the Japan's ODA policy to support for the vulnerable groups, including through the health sector such as TB control, which was prioritized in the Country Assistance Plan for Cambodia (2002).</p> <p><Evaluation Result></p> <p>In light of the above, the relevance of the project is high.</p>

2 Effectiveness/Impact

<Status of Achievement for the Project Purpose at the time of Project Completion>

The Project Purpose was achieved by the project completion. The skills and outcomes obtained through the project activities for the Survey have contributed to implementation of the six components of “the Stop TB Strategy”. Also, the Survey results, such as statistical significance of a decrease in TB prevalence which indicates effects of the DOTS strategy, were referred to formulate The National TB Control Strategic Plan (2016-2020).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have been mostly continued since the project completion. The number of health institutions delivering the DOTS service steadily increased even after the project completion. At the time of ex-post evaluation, 6 national hospitals, 104 referral hospitals, 1,170 health centers, 111 health posts and 11 private hospitals provided the DOTS service. The treatment success rate against the detected cases has remained high at 93% because of the NTP activities. In terms of TB/HIV control, the proportion of TB patients screened for HIV has been sustained at more than 80% and all the Operational Health Districts (ODs) have provided TB/HIV services. Also, 11 Multi Drug Resistant (MDR)-TB treatment sites has been sustained since 2011. However, the number of ODs introducing the Private-Public Mix (PPM) DOTS decreased from 37 in 2011 to 0 in 2015 due to the lack of budget and the number of cases diagnosed as TB by PPM also decreased to 0 in 2015. The International Standard for TB Care (ISTC) has not been practiced at CENAT because the standard required is too high. ODs and health centers have been utilizing CENAT national training manual on TB case finding and treatment for health center and referral hospital. Therefore, the manuals developed by the project for PPM and ISTC were not utilized at the time of ex-post evaluation. In terms of the community DOTS, 861 out of 1,153 HCs in the country implemented at the time of ex-post evaluation. However, the budget constraint hampered improvement of the proportion of the HCs implementing the Community DOTS. In particular in 2014, the proportion of the HCs implementing the community DOTS sharply dropped to 52% due to the lack of funding.

After the project completion, the operational surveys have been conducted: 2 surveys supported by JICA, 2 surveys supported by the WHO (cost analysis) and operational cost analysis on the Active Case Finding (ACF)¹ under collaboration among CENAT and the National University of Singapore, University of Health Science (UHS). Also, new training manuals were developed based on results of the National TB Prevalence Survey. In addition, TB REACH² developed new algorithms for TB diagnosis³ in adult and children based on the survey results for the ACF intervention since 2012.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been achieved. The TB prevalence rate and the mortality rate by TB reduced by more than 50% from 1990 to 2014. In addition, the incidence rate and death rate (morbidity rate) of TB have continuously declined from 2010 to 2015. Those improvements in the indicators attributed to the strong NTP activities and well-coordinated support by the development partners.

<Other Impacts at the time of Ex-post Evaluation>

No other positive and negative impact by project was confirmed at the time of ex-post evaluation.

<Evaluation Result>

In light of the above, the project achieved the Project Purpose and the Overall Goal. Therefore, the effectiveness/impact of the project is high.

Achievement of project purpose and overall goal

Aim	Indicators	Results																																																						
(Project Purpose) Capacity of the National TB Control Program is strengthened through implementation of the National TB Prevalence Survey.	(Indicator 1) All components of Stop TB Strategy* are carried out with high quality. *The Stop TB Strategy: WHO's global strategy to dramatically reduce the global burden of TB by 2015, which was launched in 2006.	<p><u>Status of the achievement: Achieved</u></p> <p>(Project Completion)</p> <ul style="list-style-type: none"> ● The skills and outcomes obtained through the project activities for the Survey have contributed to the following six components of the Stop TB Strategy. <ol style="list-style-type: none"> i) Pursue high-quality DOTS expansion and enhancement ii) Address TB/HIV, multi-drug resistant TB, and the needs of poor and vulnerable population iii) Contribute to the health system strengthening (HSS) based on primary health care iv) Engage all care providers v) Empower people with TB, and communities through partnership vi) Enable and promote research <p>(Ex-post evaluation) Mostly continued.</p> <p>[No. of health institutions delivering of DOTS services] (Component i and iv)</p> <table border="1"> <thead> <tr> <th></th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> </tr> </thead> <tbody> <tr> <td>National hospitals</td> <td>6</td> <td>6</td> <td>6</td> <td>6</td> <td>6</td> <td>6</td> </tr> <tr> <td>Referral hospitals</td> <td>74</td> <td>83</td> <td>82</td> <td>89</td> <td>102</td> <td>104</td> </tr> <tr> <td>Health centers</td> <td>942</td> <td>979</td> <td>1,068</td> <td>1,103</td> <td>1,153</td> <td>1,170</td> </tr> <tr> <td>Health post</td> <td>49</td> <td>67</td> <td>123</td> <td>91</td> <td>110</td> <td>111</td> </tr> <tr> <td>Private hospitals</td> <td>-</td> <td>4</td> <td>8</td> <td>11</td> <td>11</td> <td>11</td> </tr> </tbody> </table> <p>[Treatment success rate] (Component i, ii and vi)</p> <table border="1"> <thead> <tr> <th></th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td>No. of detected cases (a)</td> <td>17,441</td> <td>15,884</td> <td>14,572</td> <td>13,554</td> <td>11,755</td> </tr> </tbody> </table>		2011	2012	2013	2014	2015	2016	National hospitals	6	6	6	6	6	6	Referral hospitals	74	83	82	89	102	104	Health centers	942	979	1,068	1,103	1,153	1,170	Health post	49	67	123	91	110	111	Private hospitals	-	4	8	11	11	11		2011	2012	2013	2014	2015	No. of detected cases (a)	17,441	15,884	14,572	13,554	11,755
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¹ Systematic screening for active TB is defined as the systematic identification of people with suspected active TB, in a predetermined target group, using tests, examinations or other procedures that can be applied rapidly. (WHO)

² TB REACH is the Stop TB partnership. The main objective of TB REACH is to increase case detection of TB, detect the disease as early as possible, and ensure timely and complete treatment while maintaining high TB cure rates.

³ Algorithms are flowchart showing procedures of TB diagnosis.

No. of cases with successful treatment (b)	16,389	14,836	13,525	12,587	10,963
% of treatment success (a)/(b)	94%	93%	93%	93%	93%

[TB/HIV and MDR-TB Control] (Component ii)

	2011	2012	2013	2014	2015	2016
% of TB patients screened for HIV	More than 80%	83%	84%	81%	83%	N.A.
% of ODs providing TB/HIV services	100%	100%	100%	100%	100%	100%
No. of MDR-TB treatment sites	11	11	11	11	11	11

[Introduction of PPM] (Component iv)

	2011	2012	2013	2014	2015
No. of ODs introducing PPM	37	35	35	27	0
No. of cases diagnosed as TB by PPM	691 (2%)	763 (2%)	660 (1.7%)	465	0

[Community-DOTS and communities' participation] (Component v)

	2011	2012	2013	2014	2015	2016
No. of HCs implementing Community-DOTS	857	827	816	577	861	861
% of HCs implementing Community-DOTS (No. of HCs implementing Community-DOTS/Total No. of HCs)	89%	84% (827/979)	83% (816/979)	52% (577/1,103)	75% (861/1,153)	75% (861/1,153)

(Indicator 2)
TB Control Program activities are carried out based on the Survey results.

Status of the achievement: Achieved
(Project completion)

- The Survey results, such as statistical significance of decrease in TB prevalence among the population over 15 which indicates effects of the DOTS strategy, were referred used to formulate the National TB Control Strategic Plan (2016-2020) .
- The Survey was appropriately conducted and the results were compiled in accordance with the protocol which was developed by the project, reviewed by WHO and approved by MOH.

(Ex-post Evaluation) Continued

- New training manuals were developed in 2013
- New algorithms for TB diagnosis in adult and children based on ACF intervention since 2012 were developed by TB REACH.

(Overall goal)
TB morbidity and mortality are reduced.

(Indicator 1)
Prevalence rate and mortality rate due to tuberculosis are reduced by 50% by 2015, compared with ones in 1990.

Status of achievement: Achieved
(Ex-post Evaluation)

Indicator	1990 (a)	2010	2014 (b)	Reduction (a)-(b) (c)	Reduction Rate (c)/(a)
Prevalence rate*	1,670	660	668	1,002	60%
Mortality rate*	157	61	58	99	63%

*Per 100,000 cases

(Indicator 2)
Incidence rate of TB and death rate continue to be on the decline.

Status of achievement: Achieved
(Ex-post Evaluation)

Indicator	1990	2010 (a)	2015 (b)	Reduction (a)-(b) (c)	Reduction Rate (c)/(a)
Incidence rate*	574	473 (-17.6%)	380	93	19.7%
Death rate (Morbidity rate)*	157	61 (60.1%)	58	3	4.9%

*Per 100,000 cases

3 Efficiency

Both the project cost and the project period were within the plan (ratio against the plan: 90% and 100%, respectively). Therefore, efficiency of the project is high

4 Sustainability

<Policy Aspect>

The government of Cambodia has continuously prioritized control of three major communicable diseases of TB, Malaria and HIV/AIDS, and has continued to implement national programs to control TB, such as the National TB Control Strategic Plan (2016-2020).

<Institutional Aspect>

The organizational setting for NTP has been enhanced through increases in the numbers of the health institutions providing the TB control services from 2012 to 2016 at the time of ex-post evaluation: Since MoH established more health facilities nationwide and NTP uses national health structure to provide TB treatment services, the number of institutions providing the TB control services steadily increased over the years. The TB Laboratories (214 to 215), the National Hospitals (no change at 8), the Referral Hospitals (83 to 104), the Health Centers (979 to 1,170), the Health Posts (67 to 111) and ODs (77 to 95). The total number of staffs engaged in implementation of NTP at CENAT is 113 staffs in the units such as the Hospital Unit, the Technical Bureau, the Laboratory Unit, the Outpatient Department (OPD) Unit, the Pharmaceutical Unit and the CXR (Chest X-Ray) Unit. The total number of medical and health staffs engaged in NTP nationwide is 3,121 in the medical/health institutions, such as the TB Laboratories, the National Hospitals, the Referral Hospitals, the Health Centers, the Health Posts and ODs. The largest number of staffs (2,340) is deployed for the Health Center. The number of facilities offering the TB control service is sufficient and the institutional structure is sustainable.

<Technical Aspect>

CENAT has delivered the following 6 training courses: TB care for pediatrics, TB/HIV, TB research and treatment, TB care for prisoner, Radiology and MDR-TB. However, there are rooms to improve technical capacity of physicians and technicians as well as health staffs. For the physicians, interpretation of radiography is a necessary skill for detection of TB but they need to improve CXR reading capacity. Although skills for bacteriological examination including culture examination and smear examination are essential for the laboratory technicians, they are required to improve skills of Fluorescent Microscopy and liquid culture and Drug Susceptibility Test (DST). All subnational level health facilities surveyed by the ex-post evaluation have been following guidelines and protocols provided by CENAT on research and TB treatment. The Provincial Health Departments (PHDs) have conducted monitoring at PHD and OD levels periodically with financial support from CENAT. Some health centers reported lack of skilled staffs due to retirement of TB staffs.

<Financial Aspect>

The total budget required to operate NTP increased from 22.0 million USD in 2012 to 30.8 million USD in 2015. The projected necessary budgets for 2016 and 2017 slightly decrease to 28.6 million USD and 27.8 million, respectively. The budget of CENAT has also steadily increased from 0.89 million USD in 2012 to 1.13 million USD in 2015 and is projected to increase to 1.34 million USD in 2017. The Global Fund for Fight to AIDS, Tuberculosis and Malaria (GFATM) and the United States Agency for International Development (USAID) have been the two largest donors for NTP in recent years. While the government of Cambodia increased their own budget from 1.5million USD in 2012 to 2.0 million USD in 2015, the donors heavily supported the budget for NTP and the available amount of budget has fluctuated by the amount of fund provided by the donors. In recent years, the amount funded by the donors has been declining because donors' priority has shifted their support from vertical program based support to health system strengthening. As a result, the gap between the necessary budget and available resources increased from 7.8 million USD in 2012 to 14.3 million USD in 2015. Further increase in the national budget allocation to NTP is strongly needed to sustain current level of the activities.

<Evaluation Result>

In light of the above, some challenges have been observed in terms of the technical and financial aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project achieved the Project Purpose (for enhancing the capacity of NTP) and achieved the Overall Goal (for reducing TB morbidity and mortality). As for sustainability, the organizational setting for implementation of NTP has been sustainable under the policy endorsement. The number of staffs in CENAT and the number of medical and health staffs who have been engaged in implementation of NTP have been sufficient while the number of health facilities steadily increased. Also, the health staffs at sub-national level health facilities have been following the guidelines and protocols provided by CENAT on research and TB treatment in order to provide the TB diagnosis and DOTS. On the other hand, there are some challenges in the technical and financial aspects. The technical capacity of physicians and laboratory technicians for detection of TB are needed to improve. The budget for NTP has been decreasing after the increases from 2012 to 2015 because the donors have reduced their financial support for NTP.

In the light of above, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency: (MoH and NTP)

- Inadequacy of regular refresher training for staffs in TB sections of health facilities at OD and health center level presents an urge for more updated, frequent and regular staff capacity training to sustain high quality NTP implementation. Therefore, scaled up utilization of training manual developed by the project is required in addition to existing training guidelines and protocols.
- Staffing for NTP has not shown a major issue. However, it is necessary that existing staffs and new staffs in particular, improve their knowledge, skill and technical capacity.
- Further advocate for increasing financing of the NTP activities is essential to ensure sustainability of NTP.

Lessons learned for JICA:

- When JICA considers of terminating long-term support, in order to ensure sustainability especially on financial aspect, an exit strategy such as strengthening of financial management should be planned from the time of project formulation for the final phase of the support

and be carefully formulated with consensus and collaboration with not only the implementing agency but also other development partners concerning budgeting and funding during the project implementation. Although activities for ensuring sustainability may not directly relates to individual project's project purpose, it should be included as project activities in the last phase of series of cooperation in the same area or theme.



Mobile Health Check-up Activity



Active Case Finding Activity