

## Summary of Final Evaluation

1. Outline of the Project		
Country : The Kingdom of Cambodia		Project title : National Tuberculosis Control Project Phase 2
Issue/Sector : Health - Tuberculosis Control		Cooperation scheme : Technical Cooperation Project
Division in charge : Infectious Disease Control Division, Health Human Resource and Infectious Disease Control Group, Human Development Department		Total cost (estimated at completion of the Project) : 790 million yen
Period of Cooperation	R/D: From August 1, 2004 to July 31, 2009	Partner Country's Implementing Organization : National Center for Tuberculosis and Leprosy Control (CENAT), Ministry of Health
		Supporting Organization in Japan : Japan Anti-Tuberculosis Association (JATA)
<p>1-1 Background of the Project</p> <p>In Cambodia, infectious diseases still a major cause of mortality, and among those, tuberculosis (TB) is one of leading causes. As most TB patients are aged between 20 and 50 years old, which is among productive generation, TB infection directly affects socioeconomic situation. In 1994, National Tuberculosis Control Program (NTP) introduced DOTS (Directly Observed Treatment with Short-course chemotherapy) in Cambodia, and JICA commenced "National Tuberculosis Control Project" in 1999 with five years cooperation period, to support NTP for nationwide expansion of DOTS service. Having achieved a significant progress in DOTS expansion and improvement in cure rate during the five-year cooperation period, the major focus for TB control had shifted to better quality management and increased attention to difficult-to-reach areas and groups. Rapid expansion of DOTS services caused lack of trained health staffs engaged in TB control and supervision activities, as well as lack in its quality. In addition, spread of HIV/AIDS increased the number of TB patients, and there also was difficulty to develop an evidence-based plan of TB control because of insufficient surveillance system.</p> <p>Responding to the above situation, Tuberculosis Control Project Phase 2 was requested by the Government of Cambodia for a period of five years, and commenced in August 2004. The project has been providing technical assistance to the NTP for improving the TB control program with sustainability and quality, and for expanding the improved program nationwide. The Project consisted of three components: The first was to prevent the spread of new infections through increased case detection and expansion of DOTS services, the second provided quality TB control services for vulnerable groups of patients, and third strengthened the capacity for research and surveillance to continuously monitor, appraise, evaluate and improve the NTP interventions and their outcomes.</p> <p>1-2 Project Overview</p> <p>(1) Overall Goal</p> <p style="padding-left: 20px;">TB morbidity and mortality are reduced.</p> <p>(2) Project Purpose</p> <p style="padding-left: 20px;">Sustainable quality TB Programme is implemented nationwide.</p>		

### (3) Outputs

- 1) Management capacity of the NTP is improved.
- 2) Sustainable quality DOTS is expanded nationwide.
- 3) Suitable services and guidelines beyond routine DOTS are developed.
- 4) Quality of laboratory services to support DOTS, TB/HIV activities and surveys is improved.
- 5) Effective IEC/advocacy activities to support TB control program are implemented.

### (4) Inputs

Japanese side : Long-term Expert total: 3 persons, Short-term Experts: total 27 persons, Training in Japan: 12 persons, Provision of equipment: 518 thousand US dollars, Local cost expenditure: 1,511 thousand US dollars

Cambodian side: Counterpart personnel: total 35 persons, Provision of land and facilities: office spaces, Local cost expenditure

## 2. Evaluation Team

Members of Evaluation Team	1) Team Leader: Dr. Mitsuo ISONO, Senior Advisor (health sector), Japan International Cooperation Agency (JICA) 2) TB Control: Dr. Hitoshi OSHITANI, Professor, Department of Virology, Tohoku University Graduate School of Medicine 3) Evaluation Planning: Ms. Ayako MATSUOKA, Infectious Disease Control Division, Health Human Resources and Infectious Disease Control Group, Human Development Department, JICA 4) Program Management: Ms. Shoko SATO, Project Formulation Advisor (Health Sector), JICA Cambodia Office 5) Evaluation Analysis: Mr. Masahiro OSEKO, Consultant, Nevka Co., Ltd.	
Period of Evaluation	From January 5, 2009 to January 20, 2009	Type of Evaluation : Final Evaluation

## 3. Results of Evaluation

### 3-1 Achievement

#### (1) Achievement of the Overall Goal

Targets (Objectively Verifiable Indicators) of Overall Goal were based on the global targets of WHO, which were expected to be achieved by attaining 70% of smear (+) case detection rate and 85% cure rate of smear (+) TB patients registered. These two targets of case detection rate and cure rate were also the targets of Project Purpose of this project, and these targets were accomplished or nearly accomplished. Therefore, it was considered that the necessary conditions to achieve the Overall Goal were fulfilled.

#### (2) Achievement of the Project Purpose

- 1) The indicator concerning cure rate was fully achieved since the cure rate among newly registered smear (+) TB patients has been maintained over 85% throughout the project period.
- 2) The indicator targeting the detection rate of smear (+) TB maintained 70% was achieved in the year 2005. Although, thereafter there was a slight decrease of detection rate with fluctuation, considering that the absolute value of detected cases has been steadily increased during the period of phase 1 of the Project, and reached a plateau and maintained during the period of phase 2., this

indicator can be judged to have been achieved.

- 3) Though the target level to increase the registered cases of smear (-) “twice as many from the level in 2003” has not been achieved, taking following 3 observations into consideration, it was clear that detection of smear (-) cases seemed significantly improved: (1)the number of the registered cases of smear (-) has been steadily increased during the period of the phase 1 of the Project, and reached a plateau in 2005 and maintained during the period of the phase 2 of the Project. (2)The registered cases of TB/HIV and childhood TB, which were main components of this indicator, were also increased. (3)Along with these, the target level of “twice as many from the level in 2003” did not have concrete basis to support its adequacy.
- 4) The indicator concerning childhood TB cases was achieved, since the number of registered TB cases in children was increased twice as many from the level in 2003.

### (3) Achievement of Outputs

#### 1) Output 1 “Management capacity of the NTP is improved.”

Output 1 was expected to be achieved by improving the capacity of planning, supervision, monitoring & evaluation, survey/research, data analysis and TB drug management. Management capacity of NTP/CENAT has been improved in general. Successful mobilization of resources from other donors, particularly, Global Fund indicated better management capacity of NTP/CENAT. While the planning ability was also strengthened and annual plans of NTP/CENAT were formulated accordingly, from the standpoint of program monitoring and evaluation, the quality of the plans, survey/research design and analysis should be further improved.

#### 2) Output 2 “Sustainable quality DOTS is expanded nationwide.”

Output 2 was expected to be achieved through the activities on DOTS, C-DOTS (Community DOTS), 6MSCC (6 Month Short Course regimen) and PPM-DOTS (Public-Private Mix DOTS).

The Project has started some initiatives and played significant roles in C-DOTS, 6MSCC and PPM-DOTS. The technical know-how obtained in the pilot trials was applied for the expansion of actual operations of these programs. CENAT has promoted C-DOTS nationwide with the guideline developed through assistance by several stakeholders including the Project. However, at the practical levels, the guideline for C-DOTS is not strictly followed by some partners and there are variations in actual implementation in the community.

#### 3) Output 3 “Suitable services and guidelines beyond routine DOTS are developed.”

Output 3 was expected to be achieved by introducing services of TB/HIV, pediatric TB and smear (-) detection. The Project implemented Mobile VCT (Voluntary Counseling and Testing) in four (4) ODs (Operational Districts) in Phnom Penh municipality, targeting patients who had difficulties in visiting VCT. Concerning pediatric TB, the Project has contributed to providing pediatric TB guidance to all TB supervisors nationwide, and pediatric TB specific training courses were held. Through these activities, the number of registered TB cases in children was increased. In order to increase the detection of smear negative cases, the Project has been conducting the trainings on X-ray reading and diagnosis technique for clinical doctors and radiology technicians respectively. Although further improvement is needed, these activities resulted in enhanced capacity for X-ray diagnosis, which contributed to increase the number of smear negative case detection.

#### 4) Output 4 “Quality of laboratory services to support DOTS, TB/HIV activities and surveys is improved.”

Output 4 was expected to be achieved mainly through the trainings on TQM (Total Quality

Management), CD4 (Cluster Differentiation 4 Counting) , smear examination, bacteriological examination, and EQA (External Quality Assessment) for DST (Drug Susceptibility Test). The Project introduced the quarterly EQA instead of semiannual EQA in seven (7) pilot provinces. By increasing the frequency of EQA, the feedback became to be provided timely and the quality of test was improved. Given the fact that quarterly EQA was more effective than semiannual one to improve the quality of testing, CENAT has extended this quarterly EQA further to sixteen (16) provinces with financial support from other partners. For developing capacity of culture examinations, TB culture centers were set up at CENAT and two (2) provincial hospitals under the guidance by the Project, and DST has become able to be carried out at CENAT. As a result, the quality of test was ensured by success of panel test in 2005 and 2006. For diagnosis of smear negative cases and MDR (Multi Drug Resistant)-TB, CENAT was expected to continue and promote the best utilization of culture examination regularly.

5) Output 5 “Effective IEC/advocacy activities to support TB control program are implemented.”

Output 5 was expected to be achieved by developing and implementing strategies for IEC/advocacy. The concept of IEC/advocacy was shifted to ACSM (Advocacy, Communication and Social Mobilization), as a global trend adopted by the Stop TB Partnership.. Due to this change, IEC strategy was accordingly changed as ACSM strategy in the middle of the Project period, the draft of ACSM strategy was prepared. The Project has been assisting CENAT to conduct activities for ACSM, including advocacy meetings for factory owners for the PPM activities in Phnom Penh and the ACSM training for VHVs (Village Health Volunteers) at C-DOTS pilot areas, which enabled to strengthen activities for Output 1 to 4 from advocacy side.

### 3-2 Summary of Evaluation Results

#### (1) Relevance: Very High

TB control was one of the global priority issues targeted in the MDGs (Millennium Development Goals) with strategies to control TB including emphasis on new issues beyond routine DOTS activities such as TB/HIV, MDR-TB, TB in childhood and C-DOTS. The Project, thus, was inline with the global directions and the strategies of TB control. Regarding to the national health plans of Cambodia, TB was identified as one of the priority issues in “National Strategic Development Plan (NSDP) 2006-2010,” “Cambodia Millennium Development Goals (CMDG)” and “Health Strategic Plan (HSP) 2008-2015.” And these strategies and plans shares the same indicators for prevalence, mortality rate, case detection rate and cure rate of TB. Indicators of Overall Goals and Project Purpose of the Project were consistent with these plans of Cambodian government.

Since Cambodia was and is one of those 22 TB High Burden Countries defined by WHO, thus necessity of TB control for Cambodian people is very high. Japan’s ODA policies such as “Stop TB Japan Action Plan 2008,” “Country-Specific Plan for Cambodia 2006 (JICA)” and “Issue-based Guidelines Tuberculosis Control 2007 (JICA)” considered TB as one of high priority targets in health sector, and suggested promoting quality improvement of DOTS and introduction of Beyond DOTS strategies. The Project, therefore, were highly relevant in terms of Japanese international cooperation policies. Besides the Project, Japan extended grant aid assistance for infrastructure construction of CENAT (2001) and procurement of TB drug (2003-2005). These assistances furnished the basis for the Project, and working on this basis the Project has been extending technical and managerial assistances to CENAT/NTP. This kind of long-term cooperation by mobilizing resources through various cooperation schemes can be highly evaluated as a relevant and effective approach.

(2) Effectiveness: High

CENAT has successfully achieved the global target in TB, i.e. 85% of cure rate and 70% of smear positive TB case detection rate, which are Indicators of Project Purpose of the Project. The Project has contributed to it from the aspects as follows. Sustainable quality DOTS was expanded nationwide by the DOTS expansion activities including C-DOTS, 6MSCC and PPM. Most of these new strategies were piloted under the leadership of the Project and expanded nationwide by CENAT/NTP (Output 2). Guidelines beyond routine DOTS for TB/HIV and pediatric TB, and the algorithm chart for the diagnosis of smear negative TB were prepared by the NTP and the Project together with other partners. Services relating to them also have been extended in conformity to these guidelines (Output 3). Quality of laboratory services was improved through the activities implemented under the leadership of the Project introducing quarterly EQA and culture examination (Output 4).

(3) Efficiency: High

Most of the inputs from Japanese side such as dispatch of experts, trainings of counterparts in Japan and in the third countries, provision of equipment and local cost support were executed as planned. Cambodian counterparts highly evaluated the assignment timing, expertise and teaching capacity of Japanese experts, and mostly satisfied with contents, timing and duration of counterparts' trainings. Equipment granted has been put to practical use as so intended. Cambodian side assigned counterparts for implementing the project activities and ensuring the sustainability. Only a few counterparts were transferred to other departments or sent to long-term trainings overseas. Therefore, no serious negative effects were encountered for the Project. Smooth communication among NTP stakeholders has been maintained by systematic information sharing and discussion opportunities through TB Annual Conference (annual), Joint Coordination Committee (annual), Interagency Coordination Committee (quarterly) and CENAT/JICA Project Meeting (monthly).

(4) Impact: High (Big)

1) Achievement of Overall Goal

Indicators of Overall Goal and Project Purpose were based on the global targets of WHO, and Indicators of Project Purpose have been achieved or nearly achieved. Therefore, necessary conditions to achieve Overall Goal were fulfilled by accomplishing Project Purpose.

2) Other Impacts

- Piloting the innovative approaches such as C-DOTS, 6MSCC, EQA, PPM was supported by the Project in conjunction with other partners. Based on the experiences and know-how acquired from these pilot activities, CENAT/NTP has now extended them to other areas or nationwide.
- By strengthening the management and technical capacity of the NTP, the Project furnished a satisfactory basis for further development of TB control services. The foundation built by the Project has been attracting further support from other partners. US-CDC and MSF, for example, are now planning to introduce liquid culture, a newly developed technique for TB control, in the TB culture centers set up by the initiative of the Project.

3) No negative impacts are observed.

(5) Sustainability: Political, organizational and technical sustainability: High

Financial sustainability: Fair

- 1) Political aspect: The commitment of the Cambodian government for TB control is high and

displayed in the form of well-established consistent health policies described by the NSDP followed by the HSP and others as stated above in 3-2 (1).

- 2) Organizational aspect: CENAT is and will be the central and only organization responsible for implementing NTP nationwide. And strong leadership by the present director of CENAT has contributed to facilitating the smooth implementation of NTP.
- 3) Financial aspect: Along with the termination of financial support from several development partners including World Bank, CENAT failed to gain Global Fund round 8. In this circumstances, further efforts to mobilize funds for financial sustainability are required.
- 4) Technical aspect: Technical transfer to the Cambodian counterparts has been under favorable progress and the technical sustainability is considered to be high. Most of the training courses organized by the Project are now facilitated by Cambodian personnel. But there are some more rooms to be further strengthened in areas such as supervision and monitoring, designing of research/survey, data analysis, X-ray diagnosis, EQA and culture examination.

### 3-3 Factors promoted realization of effects

#### (1) Factors concerning to Planning

Having the project office inside of the CENAT building, forming the very close relationships with CENAT/NTP, the Project has been assisting in almost all the areas of TB control, targeting the whole country of Cambodia for long-term of ten (10) years by implementing phase 1 and 2 of the Project. Such long-term and wide range assistance enabled for Japanese side to provide their technical assistance step-by-step according to the progress in all necessary areas. The long-term assistance also enhanced human relationship between Japanese experts and Cambodian counterparts, which resulted in the development of mutual and firm trust between them. These approaches have brought about a successful achievement of global target in TB control program.

As stated above in 3-2 (1), Japan extended grant aid assistance for infrastructure construction and procurement of TB drug, and these assistances furnished the basis for the technical cooperation project. This kind of long-term cooperation by mobilizing resources through various cooperation schemes can be highly evaluated as a relevant and effective approach.

#### (2) Factors concerning to Implementation Process

When stock-out of reagents occurred at central level in 2007, the Project responded quickly by conducting training of laboratory staff on in-house production of reagents, and the negative effect of this incident was mitigated to the minimum level. In-house production of reagents is still being performed when necessary. This was a noteworthy case as a conversion of a risk into an opportunity.

In the process of extending PPM (Public-Private Mix), the Project enlarged the circle of stakeholders involving the Cambodian Ministry of Labor by extending PPM to PPPM (Public-Public-Private Mix) and Cambodia Anti-Tuberculosis Association (CATA). This approach can be highly evaluated for improving the sustainability of the project's effects.

### 3-4 Factors that impeded realization of effects

#### (1) Factors concerning to Planning

Since qualitative components were not incorporated in Indicators in PDM, this aspects of expected results of the Project have tended to be unconsidered. Besides, there were some indicators whose target levels were set on the ambiguous scientific basis.

## (2) Factors concerning to the Implementation Process

When the management of the Project was sifted from direct management of JICA to consignment basis management to JATA, there were some confusion in business routines and it caused delays of some activities of the Project.

## 3-5 Conclusion

CENAT has successfully achieved the global target of TB control program, i.e. 85% of cure rate and 70% of smear positive TB detection rate, which were Indicators of Project Purpose of the Project, and the Project has made significant contribution to this success. In this respect, the success of the Project was highly evaluated.

Among five (5) evaluation criteria, four (4) criteria of relevance, effectiveness, efficiency and impact were evaluated “very high” or “high.” Sustainability on political, organizational and technical aspects was evaluated “high” while financial aspect was evaluated “fair” since it is expected for NTP/CENAT to make further efforts to mobilize external funds such as Global Fund.

## 3-6 Recommendations

- (1) CENAT has successfully achieved the global target in TB control program and JICA has made significant contribution to this success through implementing technical cooperation projects for 10 years. Regarding to the current project, since most of the expected outcomes of the project have been achieved, it is recommended that JICA terminate this project in July 2009 as planned.
- (2) CENAT has successfully developed human resources for TB control at all levels. However, CENAT still needs to improve its capacity, especially for management of human resource and developing new staff to cope with new technical skills.
- (3) CENAT has established quality DOTS through developing supervision and monitoring system. However, it is needed to strengthen its capacity of program monitoring and evaluation. Thus, it is recommended that this capacity to be developed at all levels, i.e. CENAT at the central level, PHD, OD and HC at the local levels, upon clarifying their roles for program monitoring and evaluation at each level, considering the expected changes due to decentralization policy of the Government.
- (4) CENAT developed its capacity to conduct and analyze survey/research by technical assistance of the Project. However, still CENAT does not have enough sustainable capacity for designing of survey and adequate data analysis, particularly a large scale survey such as the national prevalence survey. Thus, it is recommended that the Project assist to enhance its capacity through conducting practical survey such as sero-prevalence survey for TB/HIV planned in the remaining project period.
- (5) CENAT has promoted community DOTS nationwide through technical and financial assistance by several stakeholders. However, at the practical levels, the guideline for community DOTS is not strictly followed by some partners and there are variations in actual implementation in the community. This may result in hampering to maintain quality of DOTS. Thus, it is recommended that CENAT to improve coordination among stakeholders.
- (6) The project has assisted CENAT to implement quality pediatric TB service in 2 provinces. Further expansion of the service is crucial and it is recommended that the Project enhance quality of services in these 2 provinces as practical model so that CENAT will be able to expand the service to other provinces.
- (7) CENAT has made tremendous achievement to detect smear negative cases by improving the capacity for X-ray diagnosis. However, as pointed out by the Project expert, the quality of X-ray diagnosis

should be further improved. Thus, it is recommended that CENAT make maximum utilization of technical assistance by the Project to develop quality of X-ray diagnosis in the remaining period.

- (8) The project has initiated to develop EQA system for smear examinations and CENAT started to expand this system nationwide and in 16 provinces the EQA system has been initiated. However, the system is not fully functioning, especially for adequate feedback mechanism of the results and practical instruction to improve the quality of smear examination by on site evaluation. Thus, it is recommended that the Project assist CENAT to enhance quality of EQA in the remaining period.
- (9) Now CENAT is planning to introduce fluorescence microscopic technique for smear examinations. Thus, it is recommended to develop quality assurance system for this technique, too.
- (10) The project assisted CENAT to develop capacity for culture examination in 3 major laboratories. However, culture examinations have not yet been fully utilized according to the criteria. Thus, it is recommended that CENAT promote best utilization of culture examination for diagnosis of smear negative cases and MDR-TB by enhancing practical instruction, including stipulation of the criteria in the guideline for MDR-TB, which is under development.
- (11) For culture examination in CENAT, it is recommended that adequate bio-safety and infection control be implemented.

### 3-7 Lessons Learned

- (1) The Project has made significant results and impacts on the Cambodian TB control program. This was attributed mainly to the provision of optimum assistance for *wide range* of technical aspects together with other factors such as long-term assistance and an application of a variety of cooperation schemes such as grant aid assistance.

In phase 2, the Project has extended its activities into the new field including culture examination, TB/HIV, PPM and pediatric TB, which was made possible on the basis prepared by the phase 1 project, and this expansion was indispensable for the step-up of Cambodian TB control program. This approach enabled the Project to make foundations in all necessary areas and caused their significant improvements. In addition to this, a wide variety of activities expanded the Project's relationships with a variety of stakeholders, and thus enabled the Project to play key roles among all the stakeholders involved in Cambodian TB control program.

This has become possible because JICA started its assistance relatively early timing after the Cambodian postwar rehabilitation, i.e. the beginning of TB control in Cambodia. In these circumstances, having its base in the central office, targeting the whole country and piloting in selected areas for policy set-up, the Project has been made notable contributions to the TB control in Cambodia. This kind of project design and implementation processes could be valuable lessons learned for other and future projects.

- (2) The project assisted CENAT to develop capacity for culture examination, and three (3) major laboratories have started their operations. However, the catchment areas of culture examination of these three laboratories are limited to their surrounding areas mainly due to the lack of specimen transportation cost. Although the category 2 patients are targeted to be examined, only some cases of them are actually tested, and the established culture examination facilities have not yet been fully utilized under the certain criteria. While other partners are planning to introduce liquid culture to these laboratories, it is required to plan the implementation system of culture examination with the emphasis on cost effective operation.

This is partly because culture examination was originally introduced for the research of MDR-TB,

but mainly because of the inadequate examination system including collection and transportation of specimens. Particularly, the application of culture examination is not clearly specified nor thoroughly adopted, and consequently the current culture examination is not fully functioning also for the purpose of MDR-TB and TB/HIV. Therefore, it is recommended that CENAT stipulates the national guideline for MDR-TB.

For a TB control technical cooperation project extending assistance for culture examination, it is recommended to include the development of operation system for culture examination including MDR-TB.

- (3) Since qualitative components were not incorporated in Indicators in PDM, qualitative aspects of expected results of the Project have tended to be unconsidered. Besides, there were some indicators whose target levels were set on the ambiguous basis, and some indicators illustrated only work processes but not targets. Indicators are expected to be the ones which enable the project to monitor its progress and performance, thus to bring issues and problems to the surface and suggest solutions for proceeding to the next step. In this respect, Indicators of this project could have been further improved. When a project for TB control is designed hereafter, with reference to the experiences of other TB control projects, it is recommended to set indicators which will serve to the effective and efficient management of the project.