

Country Name	Project for Equipment Provision for the National Tuberculosis Programme
Republic of the Union of Myanmar	

I Project Outline

Background	<p>Tuberculosis (TB) was the most serious infectious disease and the second highest leading cause of death in Myanmar as of 2007. World Health Organization (WHO) listed the country among the 22 highest TB burden countries, with a TB prevalence rate of 525 per 100,000 and TB mortality rate of 51 per 100,000 populations in 2010. TB control is a pressing and important issue for humanity. In 1966, the National Tuberculosis Programme (NTP) was established and has been expanding DOTS (Directly Observed Treatment Short-Course)¹ with the recommendation from WHO throughout the country as a combating effort against TB. The government of Myanmar has been promoting early detection and treatment of TB patients, which has produced positive results.</p> <p>However, due to financial constraints of MOH, NTP has been heavily dependent on support from development partners. When Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), which the Japanese government also funds, withdrew their support to Myanmar in August 2005, six development partners; European Union (EU), UK, Austria, Norway, Netherland and Sweden established 3 Diseases Fund (3DF) for the purpose of humanitarian aid. Myanmar had to financially depend on 3DF and Global Drug Facility (GDF), which is under the umbrella of the WHO. GDF terminated its assistance of anti-TB drugs for adults in 2009 and 3DF guaranteed to give support for 2010. GFATM then planned to restart its assistance from 2012. However, no one could commit to supplying anti-TB drugs for adults in 2011. If the Myanmar government could not secure necessary anti-TB drugs for adults for the year of 2011, there is a possible risk of problematic multi-drug resistant tuberculosis emerging during that time. Therefore, the Myanmar government requested that the Japanese government supply anti-TB treatment drugs for 2011 and this project was implemented in order to fill the gap in the blank period of assistance with the Grant Aid Project as an exceptional case.</p>																													
Objective of the Project	To improve TB treatment situation by supplying necessary types and amounts of anti-TB drugs for adults in Myanmar.																													
Output of the Project	<ol style="list-style-type: none"> Project Site: Entire Country Japanese side: Provision of TB treatment drugs: <ol style="list-style-type: none"> Patient Kits of 4FDC* (H75mg+R150mg+Z400mg+E275mg)** and 2FDC (H75mg+R150mg) 4FDC(H75mg+R150mg+Z400mg+E275mg) 2FDC(H75mg+R150mg) E400mg <p>*(FDC: Fixed Dose Combination) **(H: Isoniazid, R: Rifampicin, Z: Pyrazinamide, E:Ethambutol, S:Streptomycin)</p> Myanmar side: To prepare sites with installing anti-TB drugs, to bear the cost of custom clearance and transportation to deliver the drugs to the Region²/State and Townships levels. <p>Table 1.</p> <table border="1"> <thead> <tr> <th></th> <th>1st Delivery Jan/2011</th> <th>2nd Delivery May/2011</th> <th>3rd Delivery Aug/2011</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Patient Kits</td> <td>42,710</td> <td>42,710</td> <td>42,711</td> <td>128,131 Kits</td> </tr> <tr> <td>4FDC</td> <td>1,154</td> <td>1,154</td> <td>1,155</td> <td>3,463 Boxes</td> </tr> <tr> <td>2FDC</td> <td>1,924</td> <td>1,924</td> <td>1,923</td> <td>5,771 Boxes</td> </tr> <tr> <td>Ethambutol</td> <td>1,283</td> <td>1,283</td> <td>1,282</td> <td>3,848 Boxes</td> </tr> </tbody> </table>						1 st Delivery Jan/2011	2 nd Delivery May/2011	3 rd Delivery Aug/2011	Total	Patient Kits	42,710	42,710	42,711	128,131 Kits	4FDC	1,154	1,154	1,155	3,463 Boxes	2FDC	1,924	1,924	1,923	5,771 Boxes	Ethambutol	1,283	1,283	1,282	3,848 Boxes
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Ex-Ante Evaluation	2009 to 2010	E/N Date	March 31, 2010	Completion Date	August 2011																									
Project Cost	E/N Grant Limit: 308 million yen Actual Grant Amount: 308 million yen																													
Implementing Agency	National Tuberculosis Programme (NTP), Ministry of Health																													
Contracted Agencies	International Techno Center Co., Ltd., Toyota Tsusho Corporation																													

¹ Direct Observed Treatment, Short-course(DOTS) is the tuberculosis control strategy recommended by the WHO. TB patients take the standardized treatment regimen of six to eight months in front of healthcare workers. Healthcare workers make sure they continue treatment until it is completed. Since many countries, including Myanmar, are suffering shortage of health workers, it is difficult for healthcare workers to always observe treatments. Thus, on behalf of healthcare workers, the family members of the patients and/or community volunteers are designated as DOTS providers and make sure the drug intake by patients.

² "Regions" were called "Divisions" prior to April 2011. Since the Project for Equipment Provision for the National Tuberculosis Programme started in September, 2011, they are referred to as "Regions" in this Ex-Post Evaluation summary sheet.

II Result of the Evaluation³

1 Relevance

TB is one of the three highest priority diseases in Myanmar. Both ex-ante and ex-post evaluations found that this project was highly consistent with the national development policy, such as the National Health Plans (2006-2011 & 2011-2016). This project procured the required supply of anti-TB treatment drugs for adults in 2011, which no one had been able to commit to supplying, and met the needs of securing the continuity of TB treatment. It was also consistent with the development needs to combat Multidrug-resistant tuberculosis (MDR TB) prevention. MDR TB was a big challenge even during both ex-ante and ex-post evaluation and it is still so at present. This project was also highly consistent with Japan's ODA policy for improving the lives of people in Myanmar; poverty alleviation for ethnic minorities assisting in the areas of medical/health services, disaster prevention/management and agriculture, and agricultural development and regional development, which are specified under the country-specific plan of the Japanese government (2012). Therefore, **Relevance** of this project is high.

2 Effectiveness/Impact

A) Effectiveness

With the provision of one year's worth of anti-TB drugs between approximately 2011 to early 2013, which was the gap period of assistance from other development partners (2011 under the military regime), this project was considered to have achieved its objective: to contribute towards generally improving or maintaining the TB treatment situation by supplying necessary types and amounts of TB treatment drugs for adults in the entire country. Necessary amounts of anti-TB treatment drugs for adults were distributed to the rural health facilities within the planned period. Therefore, this project is highly effective. The following shows the analysis of **Effectiveness** of this project based on the achievements of the performance and effect indicators.

【Performance Indicators】

The necessary anti-TB treatment drugs for adults were distributed to rural health facilities within the planned period.

【Effect Indicators】

New TB cases, TB retreatment cases and Treatment success rate for the adults were improved.

The WHO recommends that National TB Control Programs should secure and stock countries with at least one year's worth of anti-TB drugs. This project solely procured one year's worth of anti-TB drugs and secured the required amounts of anti-TB drugs between the stock period (late 2011) and the latest drug expiration dates (March, 2014) for the entire country. Thus, this project contributed towards keeping the required stock of anti-TB drugs and ensuring the TB treatment activities could continue without interruption. During those few years the project lasted, it also contributed towards generally improving or maintaining the treatment completion rate, cure rate, prevalence and mortality rates, as well as decreasing the numbers of TB patients and deaths caused by TB.

Deliveries of all procured anti-TB drugs to the Regional/State TB centers of the project were completed in October 2012, before the final drug expiration dates. Through the interviews with stakeholders, the field survey also confirmed that the National TB Programme, Regional TB Centres, Rural Health Centres and Sub-Rural Health Centre never experienced any stock-out periods of anti-TB drugs for the last five years. Thus, the goal of the performance indicator shown above, which was developed at the time of ex-post evaluation, was achieved: "The necessary anti-TB treatment drugs for adults were distributed to the rural health facilities within the planned period." The objective of this project; "To improve TB treatment situation by supplying necessary types and amounts of anti-TB drugs for adults in the entire Myanmar" was generally achieved as planned.

The effect indicators, which were set at a time of ex-ante evaluation; new adult TB cases, adult relapse cases,⁴ TB retreatment cases,⁵ treatment completion,⁶ and cure rates⁷ were improved by ensuring that TB treatment activities continued without interruption. The following Table⁸ shows the national, regional and state data for the effect indicators where the field surveys were conducted for the ex-post evaluations. Although there were no noticeable improvements for the treatment situation, the conditions

³ As a characteristic of Project for Health Commodity Provisions, since the procured commodities had already been consumed at the time of ex-post evaluation, there are limitations to obtaining information about said commodities. While **Sustainability** examines "whether the effectiveness by the project is likely to continue after the project completed", in the case of Projects for Health Commodity Provisions, it is difficult to judge the sustainability of the effects of commodities because the health commodities are consumed in a short time period. Furthermore, since the beneficiaries (patients) take such commodities (drugs, test kits and mosquito nets) only during a specific time period, their effects are only apparent within that limited time. Thus, it is not possible to evaluate **Sustainability** of effects of the procured commodities at the time of ex-post evaluation. The Effectiveness of Projects for Health Commodity Provisions should instead be evaluated with confirmation of delivery status, utilization of the procured commodities, and the status of relevant disease control programs. The conventional Grant Aid Projects measure performance and effects indicators a few years after the completion of the projects during ex-post evaluation. However, in principle, it is not possible to conduct the same type of ex-post evaluation to measure **Effectiveness** and **Impact** for Projects for Health Commodity Provisions, since the causal relationship between those indicators and the projects is not necessarily clear. It may be possible to evaluate **Effectiveness**, when the direct causal relationship between the procured commodities and the projects are defined and the indicators are set according to the available data. It may also be possible to evaluate to some degree **Impact** for Projects for Health Commodity Provisions, in cases where there are no other projects in the same geographic areas during the same time periods as the projects. The evaluation of **Effectiveness** and **Impact** for the individual nine Grant Aid Projects of Project for Health Commodity Provisions is explained in each Ex-Post Evaluation Report. This Ex-Post Evaluation Study conducts the overall evaluation for each project in terms of Relevance, Effectiveness and Efficiency.

⁴ TB patients who have already completed the treatment/retreatment but recurrent (relapse) TB. They are usually included as the new TB cases.

⁵ Retreatment cases for TB patients who have interrupted/failed the TB treatment in the past (failure cases) and TB patients who discontinued the treatment more than two months without approvals from their medical doctors (default cases). Total TB retreatment cases are shown in the Table.

⁶ The proportion of new smear-positive TB cases registered under DOTS in a given year that successfully completed treatment, both with cured patients and patients who have completed their treatment, but have no bacteriological confirmation of cure.

⁷ The cure rate is defined as the proportion of smear-positive patients who completed their TB treatment and were confirmed as smear-negative at the end of the treatment.

⁸ Data in the Table 3, obtained from NTP includes all TB patients, even those that are not adults. Although this project procures anti-TB drugs for adults and its effects indicators are "New TB cases, TB retreatment cases and Treatment success rate for the adults", with all the patient data, including those that are not adults, it is determined that the achievement of the effect indicators can be confirmed.

are at least maintained and deterioration is not seen in the indicators as shown below in the table.

Furthermore, the overall situation of prevalence and mortality of TB has improved. Therefore, we can conclude that this project contributed towards improving or maintaining the TB treatment conditions in Myanmar. In addition, the technical assistance of JICA's Major Infectious Diseases Control Project (TB programme) also contributed to Myanmar, providing training to clinical laboratory technologists with "Acid Fast Bacilli: AFB", External Quality Assessment (EQA) and training of microscopy. They also developed the TB treatment manual for basic health staffs at rural health facilities, which was instrumental in capacity building of the health staffs.

Table 2.

Progress of TB situation in Myanmar (2008-2013) Source: NTP 2014

National	2008	2009	2010	2011	2012	2013
Total TB new cases	119,729	123,282	127,134	132,150	107,372	102,531
Total TB retreatment cases	9,010	9,741	10,269	11,014	11,537	12,161
Treatment success Rate (%)	85%	85%	85%	86%	86%	86%
Treatment Cure Rate (%)	78%	77%	77%	77%	77%	74%

Yangon Region	2008	2009	2010	2011	2012	2013
Total TB new cases	21,972	20,175	20,256	19,753	16,471	15,314
Total TB retreatment cases	2,462	2,423	2,617	2,794	2,759	2,754
Treatment success Rate (%)	87%	87%	88%	87%	86%	86%
Treatment Cure Rate (%)	81%	81%	82%	84%	81%	77%

Magway Region	2008	2009	2010	2011	2012	2013
Total TB new cases	7,423	7,311	6,605	6,718	6,372	6,153
Total TB retreatment cases	509	589	603	535	438	508
Treatment success Rate (%)	88%	87%	87%	86%	87%	88%
Treatment Cure Rate (%)	77%	75%	78%	78%	77%	78%

Rakhine State	2008	2009	2010	2011	2012	2013
Total TB new cases	5,202	6,374	6,359	5,842	4,169	3,992
Total TB retreatment cases	271	324	378	411	327	500
Treatment success Rate (%)	88%	86%	86%	88%	90%	84%
Treatment Cure Rate (%)	77%	78%	76%	77%	77%	64% *

* Due to the ethnic conflicts in the Rakhine state in 2013

Bago Region	2008	2009	2010	2011	2012	2013
Total TB new cases	9,803	9,461	9,266	10,259	7,857	8,318
Total TB retreatment cases	522	512	720	681	822	930
Treatment success Rate (%)	86%	86%	86%	86%	89%	88%
Treatment Cure Rate (%)	79%	86%	78%	77%	77%	74%

B) Impact

Since the factors other than this project, such as technical cooperation of JICA (Major Infectious Diseases Control Project) described above, also contributed towards improving the TB treatment situation, **Impact** of this project alone is not measurable. In addition, from perspectives of evaluability and cost-effectiveness, it is not realistic to evaluate **Impact** of this project.

3 Efficiency

The deliveries of the four types of anti-TB drugs for adults for the year procured by Japan were conducted as scheduled. As the table below shows, the anti-TB drugs were distributed to both Lower (Yangon) and Upper (Mandalay) Myanmar TB Stores three times. Although the quarterly reports from NTP to JICA Myanmar office were not found, NTP submitted the Final Report to JICA Myanmar office. The report showed the exact number of received drugs at both Lower Myanmar and Upper Myanmar TB Stores and distribution records from those two TB Stores to regions/states. With the report, the numbers and types of drugs and dates issued, names of regions/states, the remaining amounts of each drug in those two TB Stores and their expiration dates were checked.

Although 36 patient kits among 128,131 kits were found defective in March 2012, the manufacturer replaced them in a timely manner, although it was claimed after the expiration of the insurance period. At the meeting with the National TB Manager, he mentioned that they did not receive a report for any other defects. Since the expiration date of the defect kits was between September 2013 and March 2014, there were no problems due to expiration before the time of discovery of the defective kits in March 2012.

Table 3 below shows the breakdown of three shipments of JICA Assistance to both Lower (Yangon) and Upper (Mandalay) Myanmar TB Stores.

Table 3.

	1 st Delivery		2 nd Delivery		3 rd Delivery		Total
	Yangon 18/Jan/2011	Mandalay 21/Jan/2011	Yangon 7/May/2011	Mandalay 10/May/2011	Yangon 19/Aug/2011	Mandalay 19/Aug/2011	Yangon/Mandalay
Patient Kits	25,626	17,084	25,626	17,084	25,627	17,084	128,131 kits
4FDC	692	462	692	462	693	462	3,463 boxes
2FDC	1,154	770	1,154	770	1,154	769	5,771 boxes
Ethambutol	770	513	770	513	769	513	3,848 boxes

Source: Completion inspection report (September, 2011) and the Final report from NTP

The Regional/State TB coordinators quarterly request the required numbers of anti-TB drugs on the basis of the numbers of patients in all health facilities in their Region/State to the NTP. Each Central TB warehouse (Lower and Upper Myanmar TB Stores) quarterly distribute the requested amounts plus one month buffer to the Regional/State TB centers (Pull System). This pull system has been implemented for many years and is well functioning. Evaluation team confirmed that the anti-TB drugs procured by the Japanese government were distributed through this Pull System. The evaluation team confirmed the issued numbers in the receipt/distribution book at the Bago Regional TB Center, where the evaluation team visited for the field survey.

According to interviews with health staffs in Rural Health Center (RHC) and Sub-Rural Health Center (SC)⁹ where the evaluation team visited (National TB Programme and Regional/State TB Centres), they never experienced any stock-out periods of anti-TB drugs for at least the last five years, although many of them could not recall whether they were from the Japanese government, while a few remembered the boxes with Japanese logos on them.

Therefore, since output of this project was implemented as planned and both the project cost and period were within the planning, this project is highly efficient.

4 Summary of the Evaluation

Comprehensive measures and activities bring some positive changes to the TB controls in the countries and regions, thus it is difficult to specify the causal relationship between a project's procurement of anti-TB drugs and those changes in the countries and regions. Because of that, this Ex-Post Evaluation Study did not evaluate **Impact**. Since anti-TB drugs procured by this project were consumed in a short time period and the beneficiaries (patients) take anti-TB drugs only during a specific time period, their effects were only apparent within that limited time. Therefore, since it is not possible to evaluate **Sustainability** of effects of the procured anti-TB drugs during ex-post evaluation, this Ex-Post Evaluation Study could not evaluate **Sustainability**. As seen from the reasons described above, this Ex-Post Evaluation Study only evaluated **Relevance, Effectiveness and Efficiency**. The following is Summary of the Evaluation based on those three evaluation criteria:

Relevance of this project is high. TB is one of the three highest priority diseases and TB control is an important national development policy in Myanmar. The need to combat MDR TB is high. Thus, this project was highly consistent with both the development needs of Myanmar and Japan's ODA policy. Furthermore, this project was implemented at a very appropriate time.

Effectiveness of this project is high. During the gap period of assistance from other development partners (Year 2011), this project solely procured one year's worth of anti-TB treatment drugs and the necessary anti-TB treatment drugs for adults were distributed to rural health facilities within the planned period. Thus, this project contributed towards improving or maintaining the TB treatment situation: the treatment completion rate, cure rate, prevalence and mortality rates, as well as the numbers of TB patients and deaths caused by TB. In addition, the technical assistance of JICA's Major Infectious Diseases Control Project (TB programme) also contributed towards improving or maintaining the TB treatment conditions in Myanmar, in the area of capacity building of relevant TB health staffs.

Efficiency of this project is high. The output of this project was implemented as planned, and both the project cost and period were within the planning.

Overall, this project is evaluated to be highly satisfactory.

III Recommendations & Lessons Learned

Recommendations to implementing agency:

National goals of TB control in Myanmar are likely to be achieved soon. In order to achieve the goals, the evaluation team recommends the following to the Ministry of Health, especially to NTP, the implementing agency of TB control in Myanmar.

1. Strengthening case detection, reporting, and DOTS

Due to the recent increase of retreatment cases and reduction of cure rate, it is recommended to conduct the DOTS rigorously. It is also recommended to strengthen the Community involvement practice in order to find undetected TB cases among the risk groups and family/relatives of TB patients.

2. Strengthening the Multidrug-resistant tuberculosis (MDR TB) Control

In spite of efforts from NTP, the treatment rate of MDR TB is still low. Without scaling up prevention and treatment of the costly

⁹ Lower-level health facilities under jurisdiction of Township: Rural Health Center (RHC) and Sub-Rural Health Center (SC)

MDR TB, the medical expenses will increase significantly. It is highly necessary to secure the funds for scaling up MDR TB prevention and treatment and strengthening the lab facilities for MDR TB, as well as the funds for anti-TB treatment drugs, facilities, and human resources both in quality and quantity.

Lessons learned for JICA:

1. Agreement and sharing project progress between the Japanese and Counterpart (C/P) country governments

As future reference for implementation of similar projects, it is important to discuss and agree upon monitor and evaluation activities for the projects (such as timing, indicators, costs and reporting, etc.) during the planning period between the Japanese and (C/P) country governments. The agreed items should be described in the official documents. In addition, during project implementation, health sector personnel of JICA country and/or relevant JICA technical project staffs should frequently communicate with the C/P agency's staffs and share the project progress, which allows for them to solve problems and/or issues in a timely manner.

2. Needs of conducting the monitoring activities during implementation periods in Project for Health Commodity Provisions

This Ex-Post Evaluation Study could not find quarterly reports of this project from NTP to the Japanese side, which were confirmed in the Agreement between the Japanese and Myanmar governments. The final report by the NTP was submitted with records of receiving and issuing each anti-TB treatment drugs at both Lower (Yangon) and Upper (Mandalay) Myanmar TB Stores and delivery records to the regions. In the Agreement, it was agreed that the NTP should regularly report to the Japanese side regarding delivery, utilization conditions, and usability of anti-TB treatment drugs during the project implementation period. However, that information was not easily found during the field survey. It is important to specify the items of those reports; submit them to the offices of the Japanese side, and then verification and storage of reports would be the responsibility of the JICA side.

This Ex-Post Evaluation Study did not find active outreach, such as requests/reminders for report submission, from the Japanese side. In Project for Health Commodity Provisions, whose activities are mainly procuring and handing over the health commodities, it may be useful to incorporate a monitoring component with the projects at the time of planning, like one of the Grant Aid Projects for Health Commodity Provisions; Project for Malaria Control in Myanmar (JFY. 2008). In case that a monitoring component is not included, it is necessary to specify a responsible party for monitoring activities. It is also important for the Japanese side to be more proactive with monitoring activities during the project implementation period; such as hiring local consultants for a short and/or periodical terms and/or conducting joint monitoring activities with a C/P agency and JICA, instead of totally holding the C/P agency responsible.

Column

Needs to improve the infrastructure of rural health facilities in Myanmar

Anti-TB treatment drugs procured by this project were already consumed at the time of this Ex-Post Evaluation Study and the improvement of rural health facilities is not subject to matters of this evaluation. However, whether or not the health system of C/P agencies (NTP and MOH) are well-equipped for implementing similar projects in the future, this Ex-Post Evaluation Study attempted to study and analyze the situation of rural health facilities.

In Myanmar, it is confirmed during the field survey that the records of storage and delivery of anti-TB treatment drugs are kept at the central level. Regional TB Centers (Regional TB Coordinators) count and indent the number of required anti-TB treatment drugs quarterly to either Upper/Lower Myanmar TB Centers based on the number of TB patients under her/his region: numbers of patients for the past three months at Regional/State and Township/Station Hospitals and Urban/Rural and Sub-Rural Health Centers. All records of receiving and dispensing anti-TB treatment drugs are well kept in each health facility. It is also confirmed that there are no financial problems for delivery of anti-TB treatment drugs, since the Ministry of Health pays delivery costs for rural health facilities.

However, among the three Regions/States visited during the field survey, only the Regional Storage in Magway region, which was constructed by the Japanese government in 2010, is in good storage condition. The other two Regional Storages (Bago Region and Rakhine State) are very old and there is neither electricity nor proper shelves for storing the commodities. Every Rural and Sub-Rural Health Center that the field survey team visited is very old and most of them do not have electricity. Equipment, such as shelves for commodities, is also in very poor condition and there is no budget to purchase stationary and new equipment. Without such basic supplies, it seems difficult to maintain or improve qualities of drugs and health services provided.

Therefore, improvement of the infrastructure of rural health facilities and Regional Storages is to be the most urgent issue. Along with the rapid economic development in Myanmar, it is highly expected for the decentralization accompanied with the finances and budgeting for planned infrastructure improvement to be realized. However, it might require some time before this realization. In the meantime, it is recommended that the Japanese government provide technical assistance to the Myanmar government in order to develop a national health facility improvement plan. Although the development partners, such as World Bank, Three Millennium Development Goal Fund (3MDGF) and others have been conducting studies for improving the infrastructure of rural health facilities, their studies are geographically limited to certain areas and there is no overall national health facility improvement plan yet. Overall, it is unclear which geographical areas have gaps in terms of available health resources and which geographical areas are of high priority. JICA's technical assistance will specify the high priority geographical areas from the epidemiological views and will make efficient medical/health facility allocations possible in terms of rural healthcare services. It will also support the Myanmar government to develop a master plan of comprehensive health facility improvement. Under this comprehensive master plan, health facility improvement is expected in Myanmar.