

**Ex-Post Project Evaluation 2014
Package III-6 (Myanmar)**

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Republic of the Union of Myanmar

Ex-Post Evaluation of Technical Cooperation Project
“The Project on ICT Human Resource Development at ICT Training Institute”

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0. Summary

The objective of this project is to newly establish the Information and Communication Technology Training Institute (ICTTI) as a practice-oriented ICT training institute in Yangon, Myanmar and to continuously produce high-quality graduates from the training courses developed at ICTTI, thereby aiming at enhancing educational capacity of computer universities in Myanmar as well as providing high-quality human resources to the ICT industry in the future.

The relevance for implementing this project is high since it is highly consistent with the Myanmar’s development plan and development needs, as well as Japan’s ODA policy. The practice-oriented training courses of Software Development, Network Development and Short Modules were developed and implemented at ICTTI and a total of 1,963 graduates of training courses were produced as of the ex-post evaluation, including 951 graduates during the project period as well as 1,012 graduates from the project completion to the time of ex-post evaluation, leading to a rise in the level of ICT human resources in Myanmar. Of the trainees of ICTTI training courses, the lecturers of computer universities improved their teaching skills as well as the general trainees successfully obtained employment at ICT companies and they contribute to enhancing educational capacity of computer universities as well as providing high-quality human resources to the ICT industry. The project therefore has fulfilled its desired effects and has produced certain effects which had been expected to be produced in the future. While the period and cost of the project has exceeded the planned ones, the training courses of ICTTI have been continuously implemented smoothly and sustainability of the project effects is high.

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

1. Project Description



Project Location



Scenery of Class at ICT Training Institute

1.1 Background

Under the Economic Structural Adjustment Policy Support which was implemented by the Japanese Government in a period from December 2000 to March 2003 with the objective of enhancing the capacity of policymakers in Myanmar, the Governments of Japan and Myanmar established a joint task force, which was composed of representatives from industry, government and academia both in Japan and Myanmar. The task force was further divided into sub-groups to conduct surveys and compile policy proposals in the fields of fiscal and financial affairs, industry and trade, ICT and rural villages. In the ICT sub-group, the policy proposals were made with the goal of contributing to promotion of ICT utilization as well as ICT industry in Myanmar.

On another front, the development of human resources in the ICT sector, which acts as an impediment to development of information and communication industry, was regarded as a priority issue in Myanmar. The Government of Myanmar established 2 national computer universities and 24 computer colleges¹ during the late 1990s – early 2000s for the country's ICT development and defined common curriculum and syllabus of all computer universities. However, their methods of education were largely classroom-based and crucially lacked practical training. Accordingly, graduates of computer universities still needed to undergo long-term training based on OJT after they found employment with ICT companies. The University of Computer Studies, Yangon (UCSY) played a central role in the ICT education and in charge of administration of computer universities in Myanmar. While UCSY aimed to strengthen practical drill education through revising its curriculum, there was little likelihood of major improvement due to lack of practical ICT guidance techniques among lecturers, shortages of computers and drill equipment, and frequent power interruptions.

¹ All computer colleges were upgraded to universities in January 2007.

Under these circumstances, the Government of Myanmar urgently required a training organization to develop ICT human resources with practical skills in its national commitment to develop ICT industry, and requested the Government of Japan for a technical cooperation project on establishing the new ICT training institute under UCSY that would develop prospective ICT engineers to play core roles and would also serve as an intermediary between university education and the ICT industry. JICA dispatched several study teams to clarify the needs for establishing such training center and confirm the industry requirements and trend, and based on the results of these studies, the project started in December 2006.

1.2 Project Outline

Overall Goal	High quality graduates from the training course developed at ICTTI are continuously produced each time.	
Project Purpose	ICTTI conducts practice-oriented ICT training.	
Output(s)	Output 1	The project operation function is established.
	Output 2	Machinery and equipment are provided, installed, operated and maintained properly.
	Output 3	Counterparts improved their teaching skills through the implementation of the training course in ICT related fields.
	Output 4	Curriculum, syllabuses, and teaching materials for the courses are developed and modified as needed.
Total cost (Japanese Side)	746 million yen	
Period of Cooperation	December, 2006 – November, 2009 (Extension period: December, 2009 – November, 2011)	
Implementing Agency	ICT Training Institute (ICTTI), University of Computer Studies, Yangon (UCSY), Ministry of Science and Technology (MOST) Note: ICTTI is currently under the Center of Information and Communication Technology Training (CICCTT)	
Other Relevant Agencies / Organizations	None	
Supporting Agency / Organization in Japan	Japan Development Service Co., Ltd	
Related Projects	None	

1.3 Outline of the Terminal Evaluation

1.3.1 Achievement Status of Project Purpose at the time of the Terminal Evaluation

At the Terminal Evaluation conducted in September 2011², it was concluded that the Project Purpose would be successfully achieved by the completion of project and that the achievement of the Project Purpose was enabled through the achievement of each Output.

1.3.2 Achievement Status of Overall Goal at the time of the Terminal Evaluation (including other impacts)

It is prospected that the Overall Goal will be achieved if the training courses are continuously provided at the ICTTI after the project. Positive impacts have been seen on the trainees of the ICTTI training courses such as the improvement in teaching skills of the existing faculty at the computer universities and good evaluation of performances of general trainees who were employed by ICT companies after the course. On the other hand, negative impacts were neither reported nor expected.

1.3.3 Recommendations at the time of the Terminal Evaluation

The following recommendations were provided at the Terminal Evaluation.

- (1) Continuing to utilize a check list based on the “Competency-Based Training (CBT)” to keep the level of lecturers of ICTTI.
- (2) Continuing to conduct questionnaires to the trainees of ICTTI at the end of the training courses
- (3) Maintaining the sufficient number of lecturers of ICTTI
- (4) Implementing the ICTTI future management plan

All the above recommendations have been actually implemented by ICTTI after the project, for example, newly assigned ICTTI lecturers have been checked for their skills based on the check list of CBT as well as questionnaires to trainees have been conducted at the end of training courses every batch, same as during the project period. The number of ICTTI lectures has been always around 20 and this number is enough to provide training courses. The ICTTI future management plan has been also implemented since the completion of the project.

2. Outline of the Evaluation Study

2.1 External Evaluator

Sawa Hasegawa, International Development Center of Japan

2.2 Duration of Evaluation Study

² This project was extended for two years and the Terminal Evaluation was conducted twice in September 2009 and September 2011 before and after the extension.

Duration of the Study: September, 2014 – August, 2015
Duration of the Field Study: November 30 – December 18, 2014
March 18 – 23, 2015

3. Results of the Evaluation (Overall Rating: B³)

3.1 Relevance (Rating: ③⁴)

3.1.1 Relevance to the Development Plan of Myanmar

At the ex-ante evaluation of the project, the national development plan on ICT of Myanmar⁵ was the “ICT Master Plan” (2000-2010) established in 2002. In this plan, the mission, strategy and the implementation plan were prescribed in perspective of future until 2010, and ICT education (human resources development toward development of ICT industry) was placed as one of the five priority areas of ICT development in Myanmar, including ICT application, building of ICT industry, ICT infrastructure and development of ICT laws. This master plan was taken over by the secondary phase “ICT Master Plan” (2011-2015) established in July 2011 and ICT human resources development was regarded as one of the eight priority areas of the new master plan. Therefore, ICT human resources development and strengthening of ICT education have always been the priority areas in Myanmar’s policy of ICT sector development from the ex-ante evaluation through to the completion of this project and the project had relevance to Myanmar’s national development policy.

3.1.2 Relevance to the Development Needs of Myanmar

As a result of the questionnaire surveys and interviews with the persons concerned at UCSY, ICT companies and associations in Myanmar, and the graduates of the ICTTI training courses, it was confirmed that there had been a pressing need in ICT industry for ICT human resources endowed with practical skills. The background behind this need was that a total of 26 computer universities and computer colleges were established in Myanmar around 2000 before starting this project but their quality of education was low due to reasons including lack of practical ICT guidance techniques among lecturers at the universities and shortages of computers and drill equipment. In addition, the Government of Myanmar and the universities were aware of the lack of teaching skills of lecturers at the computer universities and the need to train the lecturers in adequate techniques and skills. These needs for improvement of quality of the computer universities including strengthening teaching skills and for ITC human

³ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁴ ③: High, ②: Fair, ①: Low

⁵ While the Myanmar government makes the National Development Plan every 5 year since 1992, the Plan has not been publicized. On the other hand, the sector development plan such as health, education, agriculture, environment, etc. has been made and publicized (Ministry of Foreign Affairs, *ODA Databook (2011)*).

resource development were continuously high throughout the duration of this project from the ex-ante evaluation through to the completion.

3.1.3 Relevance to Japan's ODA Policy

At the ex-ante evaluation of the project, the Japan's basic policy for ODA economic cooperation towards Myanmar placed 1) the project of urgent need and truly humanitarian assistance, 2) the development of human resources who contribute to promotion of the democracy and economic structural reform and 3) project targeting CLMV (Cambodia, Laos, Myanmar and Vietnam) countries or whole area of ASEAN region as one of the core area⁶. The project with the aim of developing human resources in ICT industry through reinforcement of ICT education was positioned as a project of human resource development to contribute to the aforementioned economic structural reform. Besides, under the ICT task force implemented in October 2002 as part of the Economic Structural Adjustment Policy Support, the policy proposal was made, emphasizing the importance of ICT human resource development in Myanmar. Thus the project was consistent with the Japan's ODA policy.

As explained above, this project was fully in line with the Myanmar's development plan and development needs, as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Effectiveness and Impact⁷ (Rating: ③)

3.2.1 Effectiveness

3.2.1.1 Project Output

ICTTI was newly established for the project which consists of four outputs such as 1) establishment of operation function of ICTTI (Output 1), 2) proper provision, installation, operation and maintenance of machinery and equipment at ICTTI (Output 2), 3) development of curriculums, syllabuses and teaching materials for training courses at ICTTI as well as their modification as necessary (Output 4), and 4) improvement of ICTTI lecturers in terms of teaching skills through the implementation of training courses (Output 3). The project aimed to achieve these four outputs so that ICTTI could provide practice-oriented ICT training.

The project achieved these four outputs during the project period. After the official establishment of ICTTI with the commencement of project (Output 1), the two training courses of Software Development and Network Development were developed and the curriculum, syllabus, students' textbook, lecturers' instruction manual, drill materials, final

⁶ Ministry of Foreign Affairs, *ODA Databook (2006)*

⁷ Sub-rating for Effectiveness is to be put with consideration of Impact.

examination questions, modification manual, etc. for each course were developed in accordance with the “IT Skills Standard (ITSS, explained on the next page)” and based on the then latest trend of ICT mainly by experts. These materials were revised by ICTTI lecturers for their improvement based on the actual use (Output 4). About 20 lecturers of ICTTI⁸ who were in charge of either of both courses were trained by the experts through experiencing the whole process of courses at first and providing actual lectures by themselves (Output 3). The machinery and equipment necessary to conduct training courses such as computers, software, rack mount server, network equipment, projectors, etc. were provided and installed by the project and a manual for operation and maintenance for the machinery and equipment was also made (Output 2). The maintenance of hardware was managed by system administrator of ICTTI and the upgrade of software was by ICTTI lecturers.

The duration of each training course was 22 weeks and conducted twice a year, from May to September and from October to March. 9 times in total, from the first batch to the ninth batch of each course were conducted during the project period. The Short Module Courses which accounted for 2-7 weeks were additionally offered in the middle of the project, in response to the needs for module-based advanced courses from ICT industry.

The trainees of ICTTI training courses consisted of two types: one was active lecturers of computer universities, who were also government officers of MOST⁹ and another was general trainees who are mainly fresh graduates of computer universities¹⁰. While the lecturer trainees took the courses at no charge and are due back to their universities after finishing the training courses, general trainees paid their course fees and most of them hoped to find a job at private ICT companies after their finishing.

The subjects of Software Development and Network Development Courses as well as Short Module Courses are listed as follows.

⁸ During the project period the ICTTI lectures belonged to UCSY as well as MOST and they had been transferred to other computer universities from ICTTI as part of the internal transfer. The number of lectures had not been fixed during the project period, but about 20 lecturers had been allocated as necessary to provide training courses.

⁹ There were several trainees who came from other ministries and other ICT-related universities such as technology universities in this type of trainees.

¹⁰ There is a “graduation eligibility of computer universities” as one of the qualification requirements in applying for the ICTTI training courses.

Table 1: List of Subjects of Software Development Course,
Network Development Course and Short Module Courses

<Common Subjects of Software and Network Development Courses> (approx. 5 weeks)	
Fundamental Linux Fundamental Network Fundamental Security Fundamental Application Development Fundamental Database New Technology Trend Fundamental Project Management Review Technique	
<Advanced Subjects of Software Development> (approx. 17 weeks)	<Advanced Subjects of Network Development> (approx. 17 weeks)
Java Programming Database Design and Administration Database Programming Object Oriented Analysis and Design Team Software Process Localization and Globalization Planning, Evaluation and Testing Methodology of Software Product Development Java Programming Advanced Workshop & Presentation	TCP/IP and Routing Protocols Network Design Linux Administration Linux Server Linux Management & Security Network Administration Workshop & Presentation
<Short Module Courses>	
Advanced Web Development Course (Web Design and PHP Web Development) (5 weeks) Oracle Database 11g Course (SQL, PL/SQL and DBA) (3 weeks) Java Framework-based Development Course (Spring-3) (2 weeks) Web and Cloud System Development Course (4 weeks) Ruby on Rails Framework-based Development Course (2 weeks) Advanced Server Course (Virtualization and LDAP) (7 weeks) Cisco Learning Network Course (Cisco Routing & Switching and Voice) (4 weeks) Project Management Course (4 weeks) Mobile Phone System Development Course (4 weeks)	

<Source> Introducing leaflet of ICTTI

Note: Above are the courses provided at ICTTI at the time of ex-post evaluation. The number of courses slightly differs from that provided during the project since some of the Short Module Courses are combined after the project in response to the requests of ICT industry and “Mobile Phone System Development Course” was newly added from the 12th batch onward.

3.2.1.2 Achievement of Project Purpose

The achievement of Project Purpose is considered and judged by the results of four indicators set for the project. The indicators and their actual results are as follows.

Achievement of Project Purpose		
Project Purpose	Indicator	Actual Results
ICTTI conducts practice-oriented ICT training.	Staff of ICTTI acquires ability of ICT on ITSS 3.	- All ICTTI lecturers who are in charge of either Software Development or Network Development Courses acquired the ability of ICT corresponding to the level of ITSS 3 in the period of January – August, 2007 through the technical transfer by

		JICA experts as well as through providing actual class from the second batch of training courses that started in October, 2007. “The ability of ICT corresponding to the level of ITSS 3” is based on the assessment of the experts since the official qualification of ITSS is not specifically established.
	ICTTI conducts a training course twice a year systematically according to needs.	<ul style="list-style-type: none"> - Two general training courses of Software Development and Network Development have been conducted twice a year (October – March and May – September semesters) starting from October 2007. The courses were provided for a total of 8 times until the end of the project (excluding the first session provided to ICTTI lecturers by the experts). Practical drills are compulsory in each training course. - Questionnaires for trainees were conducted every time after finishing the course and the courses have been improved based on the results to reflect their opinions if possible, including allocation of hours between subjects. - Short Module Courses were added as the module-based advanced courses on a trial basis in June 2009 during the fifth batch based on the needs of ICT industry and started on a full scale from the seventh batch during the extension of the project. There are different Short Module Courses consisting of some modules selected from the existing courses and some new modules and they vary in course term.
	The total number of graduates from the training course who acquire ability of ICT on ITSS 2 increases year by year.	- As explained above, official qualification of ITSS is not established but all trainees of ICTTI training courses are required to take a final examination for each course at the end of the courses and only those who passed the exam can be the graduates of the courses. Those who passed the final exam are the equivalent to the level of ITSS 2. Therefore the number of the graduates of the ICTTI courses equals the number of trainees who acquired ability of ICT on ITSS 2. The total number of graduates increases year by year as shown in the Table 2 below.
	Quality of former trainees’ classes at ICT related universities is improved.	<ul style="list-style-type: none"> - According to the result of lecturers’ questionnaires conducted at the Terminal Evaluation, most of them responded that the quality of their teaching at class improved after completion of the ICTTI training courses and that they provide the practice-oriented ICT training at their classes that they have learned at ICTTI as much as possible. - The project manager (professor of UCSY) observes the lectures provided by the graduates of lecturers of computer universities generally improved in their teaching after they finished the ICTTI training courses.

Note 1: ITSS stands for the “Skill Standards for IT Professionals” proposed by the Information-technology Promotion

Agency and it is “a set of systematic indices that clarify and systemize the skills needed for people working in the IT services industry which is intended for use as an effective measuring tool (common framework) for developing and training professional human resources in industry and academia sectors. <Source> Homepage of Information-technology Promotion Agency (IPA).

Note 2: Official examination to certify ITSS levels is not established but according to IPA, ITSS 2 is the level that one can carry out one's responsibility as a project member under the guidance of team leader and ITSS 3 is the level that one can make the design and development of specific area of technology under the guidance of team leader.

Table 2: Number of Graduates of ICTTI Training Courses during the Project Period

Batch (Training Period)	Training Course	Number of Graduates
2nd Batch (Oct 2007 – Mar 2008)	Software Development	25
	Network Development	20
	Sub-total	45
3rd Batch (May 2008 – Sep 2008)	Software Development	40
	Network Development	32
	Sub-total	72
4th Batch (Oct 2008 – Mar 2009)	Software Development	53
	Network Development	51
	Sub-total	104
5th Batch (May 2009 – Sep 2009)	Software Development	32
	Network Development	59
	Short Modules	10
	Sub-total	101
6th Batch (Oct 2009 – Mar 2010)	Software Development	51
	Network Development	73
	Sub-total	124
7th Batch (May 2010 – Sep 2010)	Software Development	38
	Network Development	39
	Short Modules	158
	Sub-total	235
8th Batch (Oct 2010 – Mar 2011)	Software Development	32
	Network Development	35
	Short Modules	54
	Sub-total	121
9th Batch (May 2011 – Sep 2011)	Software Development	33
	Network Development	32
	Short Modules	84
	Sub-total	149
Total		951

<Source> JICA and Japan Development Service, *Project Completion Report 2 on “The Project on ICT Human Resource Development at ICT Training Institute”* (December 2011)

Note 1: The number of graduates for the first batch is excluded from the total number achieved in the ex-post evaluation as the graduates of this batch were ICTTI lecturers trained by experts.

Note 2: The Short Module Course was introduced at the 5th batch as trial and was converted into a full scale from the 7th batch.

Note 3: Above is the record on all the number of graduates of ICTTI Training Courses who passed the final examination. The record on the number of all the trainees during the project period is not available in the existing reports.

As described above, all the four indicators for Project Purpose were achieved during the project period and it lead to an achievement of the Project Purpose within the planned period. It is clear that this achievement of Project Purpose was brought about by the achievement of each output since ICTTI was newly established by the project as well as the provision of practice-oriented ICT training was realized by completing activities for each output: 1) establishment of operation function of ICTTI (Output 1), 2) proper provision, installation, operation and maintenance of machinery and equipment at ICTTI (Output 2), 3) development of curriculums, syllabuses and teaching materials for training courses at ICTTI (Output 4), and 4) improvement of ICTTI lecturers in terms of teaching skills (Output 3).

3.2.2 Impact

3.2.2.1 Achievement of Overall Goal

The achievement of Overall Goal is also considered and judged by the result of indicator set for the project. The indicator and its actual results are as follows.

Achievement of Overall Goal

Overall Goal	Indicator	Actual Results
High quality graduates from the training course developed at ICTTI are continuously produced each time.	The number of graduates stands more than 1,000 people for three years after the project finished.	<ul style="list-style-type: none"> - After the project ended in November 2011, ICTTI has continuously provided the training courses of Software Development, Network Development and Short Modules twice a year, same as during the project period. Only those trainees who passed the final examination can be the graduates of the courses and the contents of exam are renewed every year to keep a certain level of the graduates. The total number of graduates after the project is 1,012 as shown in the Table 3 below. - Several changes were made to the training courses after the project; the number of classes of Network Development Course was increased to 3 from 2, two modules of the Short Modules Courses were combined as required, and a new Short Modules Course “Mobile Phone System Development (4 weeks)” was introduced. - Teaching skills of the lecturers in charge of each training course are kept at a certain level. The skill level of the graduates is also maintained as the final examination questions are renewed every year according to the revision manual. Therefore, the level of the training courses in general is maintained after the project.

Table 3: Numbers of Trainees and Graduates of ICTTI Training Courses after the Project

Batch (Training Period)	Training Course	Number of Trainees	Number of Graduates
10th Batch (Oct 2011 – Mar 2012)	Software Development	41	39
	Network Development	40	39
	Short Modules	75	62
	Sub-total	156	140
11th Batch (May 2012 – Sep 2012)	Software Development	39	33
	Network Development	55	47
	Short Modules	76	64
	Sub-total	177	144
12th Batch (Oct 2012 – Mar 2013)	Software Development	46	44
	Network Development	59	54
	Short Modules	67	63
	Sub-total	172	161
13th Batch (May 2013 – Sep 2013)	Software Development	48	43
	Network Development	59	54
	Short Modules	39	37
	Sub-total	146	134
14th Batch (Oct 2013 – Mar 2014)	Software Development	37	35
	Network Development	62	60
	Short Modules	51	46
	Sub-total	150	141
15th Batch (May 2014 – Sep 2014)	Software Development	42	37
	Network Development	59	55
	Short Modules	52	52
	Sub-total	153	144
16th Batch (Oct 2014 – Mar 2015)	Software Development	44	38
	Network Development	61	51
	Short Modules	64	59
	Sub-total	169	148
Total		1,123	1,012

<Source> Reference provided by CICTT

As shown above, training courses at ICTTI were continuously provided after the completion of the project and the total number of ICTTI graduates after the project to March 2015 was 1,012 and exceeded 1,000, and the indicator for Overall Goal was achieved at the time of ex-post evaluation. All of these graduates also passed the final examination. It led to a result that quality graduates were continuously produced from ICTTI after the project, thus the project achieved its Overall Goal.

3.2.2.2 Other Impacts

The project produced some impacts other than the achievement of Overall Goal. In the ex-post evaluation, the following beneficiary surveys were conducted to identify actual effects which the project brought about to the beneficiaries: 1) a questionnaire survey for the graduates of ICTTI training courses, who consist of lecturers of computer universities and

general trainees; and 2) interviews to the computer universities where graduates of lecturers of computer universities belonged as well as ICT companies in Myanmar, where graduates of general trainees were lately employed.

As for the questionnaire survey, at first the questionnaire for both graduates of lecturers of computer universities and general trainees was sent through E-mail to approximately 150 graduates from 10th batch to 15th batch, who were randomly selected from the list of graduates, however, only 7 responses were collected from them. Accordingly, the questionnaire for graduates of lecturers of computer universities was directly sent to each computer university through UCSY and 98 responses were collected from them. The questionnaire for graduates of general trainees was also directly sent to ICT companies where some of the graduates are currently working as well as where the interview was made in the ex-post evaluation¹¹. As a result, a total of 166 responses were collected in the questionnaire survey.

As for the interview, the survey was conducted with UCSY where most graduates of lecturers of computer universities belong and 6 ICT companies (including Japanese companies) where 3 to 20 graduates of general trainees were lately working for, as well as “Myanmar Computer Federation,” the largest association of ICT industry in Myanmar. The numbers of respondents of each survey are summarized as follows.

Table 4: Summary of Respondents of Beneficiary Surveys

Type of Survey	Respondents of Survey		Number of Respondents
Questionnaire	Graduates of lecturers of computer universities	Software Development	52
		Network Development	46
		Total	98
	Graduates of general trainees	Software Development	37
		Network Development	31
		Total	68
Interview	Computer universities - UCSY		1
	ICT companies and industrial associations - Myanmar Information Technology Pte., Ltd. - Acroquest Myanmar Technology Co., Ltd. - Myanmar DRK Co., Ltd. - NTT Data Myanmar Co., Ltd. - Myanmar Daiichi Computer Resource - Azure Net Co., Ltd ¹² - Myanmar Computer Federation		6 companies 1 association

¹¹ It implies that the result of questionnaire survey for graduates of general trainees shows a high employment rate in ICT companies since the responses were mainly collected from the current employees of ICT companies.

¹² The interview for Azure Net Co., Ltd was not conducted and the response of questionnaire was collected instead.

(1) Effects on the Graduates of ICTTI Training Courses

The current status of employment for lecturers of computer universities and general trainees among the respondents of questionnaire survey for the graduates of ICTTI training courses is as follows.

Table 5: Current Status of ICTTI Graduates of Lecturers of Computer Universities (among respondents)

Training Course	Active	Retired
Software Development	51	1
Network Development	45	1

Table 6: Job Placement of ICTTI Graduates of General Trainees (among respondents)

Training Course	ICT company	Other company	Government office	No job
Software Development	37	0	0	0
Network Development	19	7	4	1

According to the result of questionnaire survey, the ICTTI training courses have obtained very high satisfaction from the graduates, regardless of course type of Software or Network Development as well as regardless of trainee's type of lecturers of computer universities or general trainees. For example, shown as Table 7, most graduates answer "satisfied very much" to the ICTTI training courses and some graduates answered "satisfied to some degree" while no graduates answer "not satisfied so much" and "no satisfied."

Table 7: Satisfaction to ICTTI Training Courses by ICTTI Graduates (among respondents)

ICTTI graduates	Training Course	Very much	To some degree	Not so much	No	DK/NA*
Lecturers of computer universities	Software Development	45	7	0	0	0
	Network Development	41	5	0	0	0
General trainees	Software Development	29	8	0	0	0
	Network Development	28	1	0	0	2

* Do not know/No answer

In addition, they also provide positive responses on the effectiveness and usefulness of training courses they took in their present works. The detailed results of questionnaire survey for the ICTTI graduates are presented as follows with respect to lecturers of computer universities and general trainees.

Table 8: Effects of ICTTI Training Courses that Made on Graduates of Lecturers of Computer Universities (among respondents)

1) Are the knowledge and skills you learned at the ICTTI training course directly linked to your teaching subjects?

Training Course	Very much	To some degree	Not so much	No	DK/NA
Software Development	35	15	0	0	2
Network Development	32	11	1	1	1

2) Do you utilize the course materials of ICTTI training course in your teaching?

Training Course	Very much	To some degree	Not so much	No	DK/NA
Software Development	22	22	3	3	2
Network Development	19	21	2	3	1

Note: The course materials used at the ICTTI training courses are not official materials of computer universities. However, as the data shows, the lecturers answer they utilize the course materials 'very much' and 'to some degree,' which means they are using them as reference in their teaching.

3) Does your university have the environment of teaching your subjects based on what you learned at the ICTTI training course?

Training Course	Very much	To some degree	Not so much	No	DK/NA
Software Development	25	22	0	0	5
Network Development	24	18	3	0	1

4) Are there any influences on the curriculum or syllabus of your university by the ICTTI training courses?

Training Course	Yes	No	DK/NA
Software Development	29	23	0
Network Development	28	16	2

5) Do you think the quality of your teaching was improved by learning at ICTTI?

Training Course	Very much	To some degree	Not so much	No	DK/NA
Software Development	27	22	1	0	2
Network Development	41	4	0	0	1

Table 9: Effects of ICTTI Training Courses that Made on Graduates of General Trainees
(among respondents)

1) Is your current job what you had wanted to have before you took the ICTTI training course?

Training Course	Yes	No
Software Development	35	2
Network Development	18	13

Note: The reason why the answer of 'No' is relatively more among respondents of Network Development is that there is not sufficient number of companies specifically related to the network in Myanmar while the number is currently increasing.

2) Was the completion of the ICTTI training course an advantage in getting your jobs?

Training Course	Yes	No
Software Development	36	1
Network Development	31	0

3) Do you think you could have same kind of training in other training schools?

Training Course	Yes, and other schools are better	Yes, but ICTTI is better	No	DK/NA
Software Development	0	17	15	5
Network Development	1	21	9	0

4) Are the knowledge and skills you gained at the ICTTI training course directly linked to your job?

Training Course	Very much	To some degree	Not so much	No	DK/NA
Software Development	19	16	0	1	1
Network Development	18	5	4	1	3

(2) Effects on Computer Universities and ICT Companies

According to the result of interview to the computer university, responsible officials of UCSY acknowledge that their lecturers who are the graduates of ICTTI training courses are now equipped with practical ICT knowledge and skills and show improvement in their teaching as a result of taking the courses and that they are satisfied to have those lecturers trained at ICTTI. UCSY plans to dispatch their lecturers to ICTTI regularly and to use ICTTI as an institution to provide them reeducation. The same effects of improvement in skills of the graduated lecturers are seen in other computer universities under the administration of UCSY, according to the officials of UCSY.

According to the result of interviews to the ICT companies, all companies respond that they are satisfied with their employees who are the graduates of ICTTI training courses and 5 of 6 companies are actively hiring the graduates of ICTTI. The interviewed ICT companies usually conduct OJT to new employees for half a year and some of companies reply that OJT for the graduates of ICTTI can be three months. Some companies also reply that the graduates of ICTTI have skills other than technical skills that are necessary for practical work in ICT companies such as cooperation with others. This is one of the results of the

training courses in which trainees have learned about teamwork through participating in workshop drills to work as a team of several members of trainees.

ICT companies are very popular among job seekers in Myanmar and they usually have more than 10 times applicants to the offered numbers. The graduates of ICTTI training courses can be advantageous to the highly competitive application over other applicants who only graduated from a computer university. According to officials of Myanmar Computer Federation, a curriculum of training courses at ICTTI is very useful for graduates of computer universities to learn practical ICT skills and it is contributing to the improvement of ability of ICT human resources in Myanmar.

(3) Other Effects

Another example of impacts produced after the project is as follows: After the project, ICTTI entered into partnership with UCSY and both Software Development and Network Development Courses were authorized as an object of diploma. As a result, the graduates of both courses have been provided a diploma degree under the joint names of UCSY and ICTTI since the 15th batch. During the project period, a completion certificate issued by ICTTI alone had been provided to the graduates of training courses.

As described above, the project has produced some positive impacts. Meanwhile, there have been no reports of any serious negative impact in terms of the environmental and social aspects during the project period as well as at the time of ex-post evaluation, and it is unlikely that any negative impact of the project will emerge in the future.

As explained above, it is found that the project has achieved its purpose: “ICTTI conducts practice-oriented ICT training” by the end of the project and also its Overall Goal judging from the fact that ICTTI successfully has provided training courses and continuously produced the quality graduates by passing the final examination since the end of the project. In addition, it is also observed the graduates of the training courses at ICTTI consisting of lecturers of computer universities and general trainees have enjoyed positive results such as improvement of teaching skills and obtaining employment by ICT companies. The computer universities and the ICT companies where these graduates belong to are also highly satisfied with the result. Therefore, intended effects of the project have been seen and effectiveness and impact of the project are high.

3.3 Efficiency (Rating: ①)

3.3.1 Inputs

Inputs	Plan	Actual
(1) Experts	7 Short-Term (67 MM*)	12 Short-Term (218 MM)
(2) Trainees received	12 persons	41 persons
(3) Equipment	Necessary equipment for training courses such as computers, software, rack mount server, etc.	Computers, software, rack mount server, network equipment, projectors, etc.
(4) (Others)	Repair works of ICTTI buildings before the project	Repair works of ICTTI buildings before the project, repair works for damaged ICTTI buildings due to the Cyclone Nargis
Japanese side Total Project Cost	310 million yen	746 million yen
Myanmar side Operational Expenses	Counterpart staff cost, project operational cost, etc.	Counterpart staff cost, project operational cost, etc.

* MM stands for man month.

3.3.1.1 Elements of Inputs

The inputs of the project were provided by both Japanese and Myanmar sides almost as planned. The experts were dispatched as planned except for the additional dispatches for the Short Module Courses added during the extension period. The number of trainees planned to be received was 12 persons in total, 4 per year, in the original plan but the number of trainees actually received was 41 significantly exceeding the plan. The equipment was provided as planned. According to the results of questionnaire survey and interview to the related persons of ICTTI, there was no problem in the quantity and quality of inputs provided by the Japanese side.

3.3.1.2 Project Cost

As shown above, the total project cost was 746 million yen in contrast to 310 million yen in the plan. The main reason why the total cost went far beyond the planned one was the extension of project period. The project was extended for two years and it brought about a net increase in the total cost. Other reasons for the cost increase were 1) significant increase of trainees received in Japan to 41 from 12 in the plan, 2) additional dispatch of experts

associated with the additional offering of Short Module Courses, and 3) additional financial assistance provided for the restoration of damaged part of ICTTI buildings, etc. due to the severe Cyclone Nargis in 2008.

Regarding the increase of trainees received, despite the proposal by experts to select trainees depending on their performance, the Myanmar side insisted selecting trainees taking also into account their ranks among counterparts and other factors. As a result, the trainees covered only some of counterpart members in the original plan which caused a feeling of unfairness among the members over the selection of trainees and reduced the motivation among them. In the aftermath all the members participated in the training in Japan since the effectiveness of training was well acknowledged by JICA experts. This resulted in significant increase in the number of trainees received.

Thus the project cost is significantly higher than the planned one (over 150%).

3.3.1.3 Period of Cooperation

While the outputs and Project Purpose were implemented almost as planned showing a reasonable achievement in relevance, effectiveness, efficiency and impact at the time of the first Terminal Evaluation conducted in September 2009, only the achievement of sustainability was slightly low. The project was extended for two years to secure the better sustainability for the future and the following five additional activities were added to implement during the extension period without changing the contents of the project outputs.

- To introduce short module courses at ICTTI
- To implement seminars for external participants
- To provide training support for lecturers of computer universities
- To implement a follow-up and support activities for ICTTI graduates
- To provide support for improvement of the capacity of the management of ICTTI

Since all the above activities were fulfilled during the extension period and the sustainability of the project was considered to be favorable as described herein below, it is observed that these activities somewhat contributed to the favorable sustainability. However, the necessity to extend the project period for two years was considered to be low since both Outputs and Project Purpose had mostly been achieved within the original project period.

Thus the actual period of cooperation was significantly longer than the planned one in the result (over 150%).

As explained above, both the project cost and project period significantly exceeded the plan. Therefore, efficiency of the project is low.

3.4 Sustainability (Rating: ③)

The objective of the project is to newly establish ICTTI as the practice-oriented ICT training institute and continuously produce high quality graduates from the training courses of ICTTI, thereby the project aims to strengthen the education capacity of computer universities in Myanmar as well as to provide high quality ICT personnel to the ICT industry. As described in the paragraph of “effectiveness and impact” above, ICTTI is continuously providing training courses after the project at the same level of volume and quality as those during the project period and constantly producing high quality graduates of the courses. As a result, sustainability of the intended effects of the project was confirmed at the time of ex-post evaluation.

Factors that enabled such sustainability of the effects and the perspectives necessary to further support such sustainability in future will be discussed in the policy and institutional, organizational, technical and financial aspects in this section.

3.4.1 Related Policy and Institutional Aspects for the Sustainability of Project Effects

According to the questionnaire survey and interview with officials of MOST, the Government of Myanmar still supports the “ICT Master Plan” (2011-2015) and the development of ICT sector, including promotion of e-government, is continuously placed as one of the priority areas in Myanmar. ICT human resources development including strengthening of ICT education is supported by the Government of Myanmar as of ex-post evaluation. MOST has conducted evaluation research on the current ICT Master Plan as of ex-post evaluation, and based on the results of the research, MOST plans to determine the policy and contents of the next-term Master Plan.

As the specific examples of strengthening of ICT education, the new school called “Center of Excellence” is established as of 2012 as a branch campus of UCSY with the aim of serving as an educational center to build up the future ICT elites and to accept top enrolled students of UCSY. In addition, the Myanmar government intends to use the training courses at ICTTI continuously as important educational tools to develop ICT human resources and plans to establish a new course at ICTTI that provides training in relation to e-government for officials of government organizations and agencies in near future.

The policy and institution for ICT human resources development and strengthening ICT education are continuously implemented without change after the project.

3.4.2 Organizational Aspects of the Implementing Agency for the Sustainability of Project Effects

Just before the project ended in September 2011, ICTTI was shifted from under UCSY to

under the Center of Information and Communication Technology Training (CICTT)¹³. As of the ex-post evaluation, CICTT is directly under the jurisdiction of MOST and has managed another ICT-specified training institute named “India-Myanmar Center for Enhancement of Information Technology Skills (IMCEITS)” established in 2008 by the Indian fund. While the Center Director and nine administrative staff of CICTT are currently in charge of management of both ICTTI and IMCEITS, lecturers in charge of training courses are different each other¹⁴. 23 lecturers are currently engaged in the class of each training course at ICTTI at the time of ex-post evaluation and this number of lecturers is considered to be enough to conduct the present training courses.

According to the results of questionnaire survey and interview with the Center Director of CICTT, the operational structure of CICTT with 10 staff including the Center Director was working well without problems and in the new structure under CICTT, ICTTI can now directly communicate with and request to MOST as necessary, different from during the project period when the requests were not directly made to MOST but through UCSY. In addition, while the ICTTI lecturers were required to provide class at UCSY during the project period and it caused a heavy burden for them, they can now concentrate on the class of ICTTI. In this regard, organizational structure of ICTTI has been improved from the one during the project period.

Management and maintenance of machinery and equipment are carried out in the same way as in the project period. The ICTTI lecturers are responsible for updating software and the system administrator is in charge of the maintenance of the hardware in an appropriate manner in accordance with the management schedule specified in the “ICTTI Future Management Plan.” Thus the maintenance system is also working well without problems.

In addition, interaction between ICTTI and private ICT companies became active after the project that was prompted by the shift to civilian rule implemented in March 2011. As a result, technical and physical support are actively provided from private companies to ICTTI and employment opportunities for the graduates of the training courses and chances of information collection on recent trend of ICT industry are increasing. Thus the environment that surrounded ICTTI got better than that during the project period.

Judging from what described above, the organizational structure necessary for sustaining the effects produced by the project is considered to be fully established.

¹³ As part of the education reform in Myanmar, while all computer universities sifted to under the Ministry of Education in April 2015, CICTT is still under MOST.

¹⁴ According to the Center Director of CICTT, a new institute is planned to be established under CICTT in addition to ICTTI and IMCEITS in FY2015, which is based on the research and development of ICT.

3.4.3 Technical Aspects of the Implementing Agency for the Sustainability of Project Effects

According to the result of questionnaire survey and interview to the ICTTI lecturers, the software, textbooks and contents of final examinations, etc. used in the training courses have been updated by the ICTTI lecturers as necessary based on the manual for revision. The update of software has been also operated by the lecturers and according to the result of interview to them, they do not have special problems in updating them.

Regarding the technical aspect of ICTTI lecturers, 13 out of 23 lecturers at the time of ex-post evaluation had belonged to ICTTI during the project period. The newly assigned lecturers are all selected from the graduates of ICTTI training courses based on stringent criteria and all the lecturers at ICTTI are the quality personnel. The technical transfer from the existing lecturers to newly assigned ones has been conducted smoothly based on the ‘Competency-Based Training,’ which was adopted as the useful method of technical transfer in the project.

“Mobile Phone System Development” course was the only course that has been newly introduced after the project. This was not due to technical reasons but mainly due to the fact that the priority was placed on the expansion of the capacity of class of the existing training courses to respond to the number of applicants for the existing training courses of ICTTI is more than doubled of the capacity. During the project period, there were 2 classes each for Software Development Course and Network Development Course and after the project 1 class was added to Network Development Course and the course currently consists of 3 classes.

Thus it is considered that there is no particular problem in terms of technical aspect in sustaining produced effects after the project.

3.4.4 Financial Aspects of the Implementing Agency for the Sustainability of Project Effects

According to the results of questionnaire survey and interview with the Center Director of CICTT, all the budget of ICTTI directly disbursed from MOST and even training fees paid from general trainees go to the public treasury of MOST.

The following table shows the annual budget and expenditure of CICTT (including both ICTTI and IMCEITS).

Table 10: Annual Budget and Expenditure of CICTT¹⁵Fiscal years: April – March, Unit: Myanmar Kyat¹⁶

	FY2012/13	FY2013/14	FY2014/15	FY2015/16
Budget	36,169,900	98,351,000	109,648,474	109,648,474
Expenditure	127,210,750	384,028,660	911,544,644	Not available yet

<Source> Reference provided by CICTT

As shown in the table above, the expenditure amount significantly exceeds the budget amount every fiscal year and this phenomenon is not unusual in the government organizations of Myanmar. The annual budget allocated to CICTT from MOST includes only the expense items of personal expense, utility expense and supplies expenses. The expenses that additionally incur such as machinery and equipment expenses are not included in the budget but included only in the expenditure. After an application for machinery and equipment expenses is filed to MOST through CICTT, the equivalent amount is disbursed. As shown above, both annual amounts of budget and expenditure at CICTT have been increasing year by year and such increase is only the case among the government organizations. In addition to the budget disbursement from the ministry, efforts are made to obtain external support, for example, grant of scholarship to the trainees and projectors provided free of charge from the related ICT companies. According to the Center Director of CICTT, current amount of regular and supplementary budgets disbursed from MOST for ICTTI is enough to maintain the training courses and there has not been any financial problem.

Most of the machinery and equipment provided by the project are working normally without problems after more than 8-year use. However, some of them such as computers, projectors, UPS etc. are old and their failure rate is high. Failed equipment is repaired if possible for continual use and old computers and projectors the unit prices of which are relatively inexpensive have been replaced with new ones using supplementary budget from MOST. In FY2015 and FY2016, it is planned to further replace about 200 units of slow computers used at ICTTI and about 120 units at IMCEITS with new ones using the supplementary budget from MOST. However, the UPS for each classroom is left under trouble though the UPS for the server PC has been replaced with new one by senior volunteers dispatched from JICA. Supplementary budget for UPS has not been smoothly approved for disbursement partly as it is expensive. The above is not considered a priority issue since the training courses can be run without it and the impact on the overall operation of the project is small.

Thus there is no particular problem in terms of financial aspect in sustaining produced

¹⁵ As for the budget and expenditure before FY2012/13, the budget for ICTTI had been disbursed from UCSY and the data was not available at the ex-post evaluation.

¹⁶ 1 Kyat = approx. 0.11 Japanese yen (based on the exchange rate as of March 2015)

effects after the project.

3.4.5 Demand of Practical ICT Training in Myanmar

Currently the number of applicants for the training courses of ICTTI keeps more than doubled every batch as described above. Besides, the number of ICT companies including both local and foreign-financed ones is also on the increase in Myanmar since the transition to civilian rule in 2011. According to the Myanmar Computer Federation, the current number of fellow members of the Myanmar Computer Industry Association is 894 (as of December 2014), significantly increased from 301 as of October 2011 and 275 as of October 2010. If included non-member companies, the increasing ratio of the entire number of ICT companies is even higher.

The following table shows the number of ICT companies categorized by the business type among the fellow members of Association.

Table 11: Number of ICT Companies Categorized by the Business Type

Type of Business	Number of Companies as of 2011	Number of Companies as of 2014
Hardware Sales & Service	134	448
Software	43	113
Mobile Sales & Service	-	99
Education & Training	55	90
Web & Internet Services	6	52
Multimedia Services	-	47
ICT Services	-	43
Telecommunication	-	2
Others	63	-
Total	301	894

<Source> Reference provided by the Myanmar Computer Federation

Note: The definitions of each category of “Type of Business” in 2011 and 2014 are not the same.

Due to the rapid increase of the ICT businesses, demand for ICT human resources is also increasing. According to officials of the Myanmar Computer Federation, demand in the industry for ICT personnel trained and equipped with practical skills is very high. In addition, as described above, MOST is considering opening a new course related to e-government at ICTTI to train government officers for the promotion of e-government which is one of the policies of the Government of Myanmar. It is therefore highly prospected that the trained ICT human resources will be much in demand in Myanmar for some time to come as well as ICTTI will continuously be the good supply source of skillful ICT human resources supported by a stable demand from both industry and public organizations.

As explained above, no major problems have been observed in the policy background and the organizational, technical, financial aspects of the implementing agency. Therefore, sustainability of the project effects is high.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The objective of this project is to newly establish ICTTI as a practice-oriented ICT training institute in Yangon, Myanmar and to continuously produce high-quality graduates from the training courses developed at ICTTI, thereby aiming at enhancing educational capacity of computer universities in Myanmar as well as providing high-quality human resources to the ICT industry in the future.

The relevance for implementing this project is rated high since it is highly consistent with the Myanmar's development plan and development needs, as well as Japan's ODA policy. The practice-oriented training courses of Software Development, Network Development and Short Modules are developed and implemented at ICTTI and a total of 1,963 graduates of training courses have been produced as of the ex-post evaluation, including 951 graduates during the project period as well as 1,012 graduates from the project completion to the time of ex-post evaluation, leading to a rise in the level of ICT human resources in Myanmar. Of the trainees of ICTTI training courses, the lecturers of computer universities have improved their teaching skills as well as the general trainees successfully have obtained employment at ICT companies and they contribute to enhancing educational capacity of computer universities as well as to providing high-quality human resources to the ICT industry. The project therefore has fulfilled its desired effects and has produced certain effects expected to be produced in the future. While the period and cost of the project has exceeded the planned ones, the training courses of ICTTI have been continuously implemented smoothly and the effects made by the project are highly sustainable.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

The machinery and equipment provided by the project are old enough now as 8 years have passed since they were installed. Especially some of computers, projectors and UPS have troubles due to their oldness and ICTTI has replaced old computers and projectors within the limits of supplementary budget from MOST since their unit cost is rather inexpensive compared to UPS. While the UPS for the main server of ICTTI have been replaced to new one by the JICA's assistance at the dispatch of senior volunteers after the project, the UPS for each

classroom is still under trouble. This is because the supplementary budget for UPS has not been smoothly approved for disbursement partly as UPS is very expensive and mainly it is not considered a priority issue since its impact on the implementation of training courses is small. Although courses are operational without normal function of UPS, power failure, if occurred, would cause considerable damage including loss of data on each computer. To avoid this risk, replacement of the UPS for each classroom is desirable. MOST is therefore expected to review preparation for the supplementary budget to purchase new UPS for each classroom in the next financial year in order to provide comfortable environment for implementing training courses.

4.2.2 Recommendations to JICA

JICA continuously provides assistances to ICTTI even after the project, such as accepting trainees from ICTTI lecturers and providing them with technical training on ICT at the Okinawa Training Center as well as dispatching IT specialized senior volunteers to ICTTI. While these assistances of soft aspect are useful and effective, it is revealed from the interview with officials of ICTTI that the issue of higher priority than technical assistance for them is replacement of old and deteriorated machinery and equipment in view of continuous implementation of the training courses. Making suggestions for budgeting effort on the Myanmar side is important as described in the recommendation to MOST. At the same time, it would contribute to sustaining the project effects more in ongoing assistance to ICTTI if JICA continuously supports ICTTI in the hardware aspect such as a part of assistance to replacement of UPS in addition to soft aspect as it did for the especially deteriorated UPS for the server through its assistance dispatching senior volunteers.

4.3 Lessons Learned

None

Republic of the Union of Myanmar

Ex-Post Evaluation of Technical Cooperation Project
“Eradication of Opium Poppy Cultivation and Poverty Reduction
in Kokang Special Region No.1”

External Evaluator: Mimi Sheikh
International Development Center of Japan, Inc.

0. Summary

With the goal of preventing the Kokang Self-administered Zone (KSAZ) residents from reverting back to opium poppy cultivation and improving their livelihoods, this project first launched its emergency assistance to mitigate critical poverty in the region, followed by a comprehensive scheme to improve farming technology needed for alternative cropping and to improve the education and health environment. Because these goals complement Myanmar’s minority development policies—such as the “15 Year-Plan of Opium Eradication”—along with the KSAZ’s development needs and Japanese assistant policies, the relevance of this project is high. Furthermore, according to the results of the beneficiary survey carried out at the 6 pilot village tracts, when comparing the pre-project and post-evaluation situation, the villagers experienced an increase in income due to the diversification of crops and improvements in the education and health environments. These changes in the quality of life are acknowledged by the villagers. The Myanmar government has also shown high regard for the project, recognizing that the series of achievements exemplify a successful example of sustainable transition from opium poppy cultivation. In addition, through this project, the Myanmar government and KSAZ have been able to build a greater relationship of trust—which has had a positive impact in terms of peace and conflict resolution. Hence, the effectiveness and impact are regarded to be high. However, because the cooperation period and finances slightly exceeded the project plan—despite the fact that all inputs were properly utilized—the project’s efficiency was evaluated as fair. Its sustainability is generally not considered to be a problematic issue: drug eradication policies have been maintained during ex-post evaluation, and in the area of finance, a development assistance budget specifically targeted for opium poppy-cultivating regions has been created since 2013. Nevertheless, because the system to transfer farming technology from the Department of Agriculture to the farmers is still not adequately equipped, and the movements of anti-government forces cannot be predicted, the project’s sustainability has been undermined by a number of problems. Hence, the sustainability of project effects has been assessed as fair. In light of the above, this project is evaluated to be satisfactory.

1. Project Description



Project Location



Crops experimentally planted at Nali farm

1.1 Background

Located in the northeastern part of Shan State in the Republic of the Union of Myanmar (hereinafter referred to as “Myanmar”), the Kokang region has historically been renowned for its flourishing opium poppy cultivation, the source of the narcotic drug, opium, due to the central government’s weak administrative rule. In March 1989, the Kokang people—an ethnic minority of the Kokang region—became the first of all anti-government groups to sign a ceasefire agreement with the government of Myanmar, winning their

autonomy as Special Region No. 1. In exchange, the Kokang leadership agreed with the government to halt opium poppy cultivation that has been maintained for a century, and by strengthening their legal control, were able to successfully eradicate opium by 2003.

However, the rapid eradication of opium poppy cultivation with the strengthening of legal control has had adverse effects on the farmers of the Kokang Special Region (“Kokang Self-Administered Zone (KSAZ)” since 2009). Whereas 70% of their income derived from opium poppy trade prior to its eradication, the farmers suddenly lost their source of cash income. As a result, they could no longer acquire products and services that were typically obtained by cash in the past—such as fertilizer, food, healthcare and education—and their state of poverty deteriorated rapidly. Only within the reported cases in 2003, more than 100

Overview of Kokang Self-Administered Zone

- ◆ Population: about 150,000-160,000*
- ◆ Area: 1,844.5 km²
- ◆ Topography: mountainous area (altitude from 1,000 to 2,000 m)
- ◆ Main common language: Chinese
- ◆ Main ethnic group: Chinese Han
- ◆ Administrative district: The region became self-administered zone in 2009. Myanmar is consists of 7 states, 7 region, 5 self-administered zones, and 1 union territory.
- ◆ Government location: Laukai

*The exact number is unknown because many people come and go between Kokang and Yunnan province in China at the border area.

people succumbed to starvation, and more than 270 of the 4,000 people infected with malaria lost their lives in Konkyang of northern Kokang Special Region. It was imperative, therefore, for the Myanmar government to resolve this critical situation, maintain peace in the region and prevent farmers from reverting back to opium poppy cultivation for survival. Against this backdrop, JICA has dispatched experts to mainly Kyaukme of Shan State since 1997, promoting buckwheat cultivation as one of the substitute crops for opium poppy. Due to the projects' achievements in improving the farmers' income, the Myanmar government has requested JICA to launch a technical cooperation project with a comprehensive approach for agricultural development, maintenance of basic infrastructure and enhancement of education and health systems. Consequently, the project started in April 2005.

1.2 Project Outline

Kokang farmers became severely poor since the region eradicated opium poppy in 2003; farmers no longer had cash income to buy fertilizer, food, healthcare and education services. Farmers did not have enough food and many lost their lives due to malaria infection. Nobody was ready to cultivate substitute crops planned by the project. Therefore, the project provided emergency support in order to help farmers break out from poverty and to gain an understanding of the upcoming project activities through the available assistance. After confirming the outcome of the emergency assistance, the project implemented development assistance including improved agricultural techniques, livelihood improvement by organizing villagers' groups, developing school and health facilities to further improve the living standard of the region. Furthermore, the project expects KSAZ to continue livelihood development activities based on the cultivation of substitute crops for opium poppy after a series of successful examples were observed by the KSAZ government and villagers during the process of implementing development assistance through the project. The following is the project outline.

Overall Goals		1. Living conditions of the beneficiaries are improved 2. Successful experiences of the poverty reduction and rural development in Kokang Special Region No. 1 is demonstrated as a rural development model of post opium poppy cultivation areas
Project Purposes		1. Critical situation of people in poverty right after the eradication of opium poppy cultivation is mitigated 2. Successful experience of implemented with collaboration of Myanmar government and Kokang Special Region No. 1 and villagers' self-reliant participation are demonstrated mainly in the Pilot Areas
Outputs	Output 1	Urgent critical situation is mitigated in Kokang Special Region No. 1

	Output 2	Techniques and approaches regarding the whole process from cultivation to marketing of substitute crops are improved mainly in the Pilot Areas
	Output 3	Improved farming techniques are disseminated and used by farmers mainly in the Pilot Areas
	Output 4	The villagers' livelihood is improved (e.g. through group activities) mainly in the Pilot Areas
	Output 5	Basic health situation and education environment are improved mainly in the Pilot Areas
Total cost (Japanese Side)		1,074 million yen
Period of Cooperation		April, 2005 – March, 2010 Extended Period: April, 2010 – March, 2011 (extension)
Implementing Agency		Responsible Agency: Ministry of Progress of Border Areas and National Races and Development Affairs / Progress of Border Area and National Races Department (PBANRD) Implementing Agency: Myanmar Agriculture Service (presently Department of Agriculture (DOA)), Ministry of Education (MOE), Ministry of Health (MOH), and Kokang Special Region No. 1 (The area had been self-administered zone since 2009. In this evaluation report, “Kokang Special Region No. 1” is used to describe overall goals, project purposes, and outcomes which are established at the time of project planning. For other parts of the report, Kokang Self-administered Zone (KSAZ) will be used.)
Other Relevant Agencies / Organizations		None
Supporting Agency/Organization in Japan		Ministry of Agriculture, Forestry and Fisheries
Related Projects		<ul style="list-style-type: none"> • JICA technical assistance for eradication of opium Poppy cultivation by substitute crops (mainly buckwheat) (1999-2004) • The Development Study on Sustainable Agricultural and Rural Development for Poverty Reduction Programme in the Central Dry Zone of the Union of Myanmar (2006-2010) • Myanmar Agriculture Service, Ministry of Agriculture and Irrigation (2008-2011) • Project for Eradication of Opium Poppy Cultivation and Rural Development in the Northern Part of Shan State (2014-2019)

1.3 Outline of the Terminal Evaluation

1.3.1 Achievement Status of Project Purpose at the time of the Terminal Evaluation

Project purpose 1, “Critical situation of people in poverty right after the eradication of opium poppy cultivation is mitigated” was generally achieved. In contrast, project purpose 2, “Successful experience of implemented with collaboration of Myanmar government and Kokang Special Region No. 1 and villagers’ self-reliant participation are demonstrated mainly in the Pilot Areas” was partially achieved. Some of the planned

activities were not implemented due to the military conflict that occurred in 2009 and consequently, some of the project activities were suspended or postponed. The project period should be extended to undertake the incomplete activities¹.

1.3.2 Achievement Status of Overall Goal at the Time of the Terminal Evaluation

Project outcomes such as constructing branch roads by applying road improvement techniques used in this project, and multiplying and distributing rice seed (type YJ-202) developed on their own after receiving primary seeds from the project were observed. The project outcomes are expected to be disseminated to other village tracts and villages in future.

1.3.3 Recommendations at the time of the Terminal Evaluation

Due to the military conflict in August 2009², the following activities shown in Table 1 were delayed. The project period should be extended for one and half years to undertake the unfinished activities.

Table 1 Unimplemented Activities at the Time of Terminal Evaluation

Output 2	Buckwheat cultivation, technical advice for tea farmers and experimental demonstration in Tarshwetan farm
Output 3	Bokashi training, and demonstration at Nali farm and model farmers
Output 4	Monitoring animal dispersal through a revolving system and 3 water supply facilities in Taukshwe village tract ³
Output 5	Teacher training in literacy class and health education, 2 literacy classes in Lontan and Minchen village tracts, 1 school construction in Chuntai village tract, 1 school renovation in Shaukai village tract, 13 school latrines in Lontan, Minchen and Chuntai village tracts, Extended Program on Immunization (EPI) in Lontan and Taukshwe village tracts

2. Outline of the Evaluation Study

2.1 External Evaluator

Mimi Sheikh, International Development Center of Japan, Inc.

¹ As a result of the terminal evaluation, the project was extended for one year.

² The confrontation started when Myanmar government requested Kokang army to incorporate into national border guard force and when the government made a raid on a gun factory in 8th August 2009, a large confrontation occurred from 27th to 29th August in Kokang. Although the official number is not known, a total of more than 200 people for both forces died and over 30,000 people were temporarily evacuated to Yunnan Province in China as refugees due to the incident.

³ Due to deterioration of safety in Taukshwe village tract, the plan was cancelled after the terminal evaluation.

2.2 Duration of Evaluation Study

The ex-post evaluation was conducted under the following schedule.

Duration of the Study: September, 2014 – August, 2015

Duration of the Field Study: December 3 – 20, 2014 and March 16 – 23, 2015

2.3 Constraints during the Evaluation Study

The indicators established during project planning did not provide information on the baseline data⁴ and a way to obtain this data. Therefore, the evaluator needed to collect three points, which were the time of project planning, project completion, and ex-post evaluation, through a beneficiary survey. In addition, as a result of the ex-post evaluation, it was found that most of the data related to KSAZ were not collected or published. For this reason, while reviewing the indicator established at the time of project planning, the decision made in the evaluation was based on the information gathered through interviews of project stakeholders and beneficiary survey. Furthermore, questions concerning the time of project planning, project completion, and ex-post evaluation were going to be asked in the beneficiary survey, but the questions were narrowed down to a minimum number because it was discovered during pre-testing for the beneficiary survey that asking farmers all the questions made them feel pressured. It was also difficult for them to make the time to answer all the questions due to their daily farm work. In addition, the pilot village tracts for the project were located in a mountainous area and some areas were only accessible on foot. Thus, the evaluator could not visit all the villages to study the prevailing conditions within the limited study period. For villages that the evaluator could not visit, the evaluator interviewed village tract leaders in order to maintain the quality of the evaluation. Since information on budget allocation and expenditure was not publicly available, the data was collected by interviewing stakeholders and evaluated.

3. Results of the Evaluation (Overall Rating: B⁵)

3.1 Relevance (Rating: ③⁶)

3.1.1 Relevance to the Development Plan of Myanmar

The Government of Myanmar promulgated the “15 year-plan of Opium Eradication” that promoted substitute crops to opium poppy cultivation and promised to achieve the plan in 2014. The Ministry of Progress of Border Areas and National Races and Development Affairs (PBANRD) produced a “Thirty Year Development Master Plan for Ethnic Minorities” in order to improve the living condition of ethnic minorities in border

⁴ It is qualitative and quantitative information which serve as a basis at the time of project start.

⁵ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁶ ③: High, ② Fair, ① Low

areas. Under this plan, PBANRD constructed roads, bridges, schools, and health centers. The government policies to eradicate opium poppy and assist ethnic minorities did not change from the period of project planning to project completion. Therefore, the project was in line with the development plan of Myanmar.

3.1.2 Relevance to the Development Needs of Myanmar

More than 100 people succumbed to starvation of the cases reported in 2003, and more than 270 of the 4,000 people infected with malaria lost their lives in Konkyang in the northern Kokang Special Region. In view of this situation, a project aimed at developing the area by improving the income level of farmers was urgently needed by the Kokang government and its people.

As described later in the section on 3.2.1 Effectiveness, although the poverty level dropped at the time the project was completed in comparison to the project planning period, the KSAZ government policy to achieve social economic development without returning to opium poppy cultivation, and the farmers' development needs to improve their income by producing substitute crops to quickly free them from poverty had been consistently maintained during project period. Therefore, the project was in line with the development needs of Myanmar.

3.1.3 Relevance to Japan's ODA Policy

According to Japan's ODA Data by Country issued by the Ministry of Foreign Affairs of Japan in 2004 and 2005, because the Aung San Suu Kyih movement had been restricted by the government authorities in Myanmar on May 30, 2003, the Japanese government decided to hold back approval of new ODA projects in principle, while approving projects that only supported urgent and humanitarian need. In view of the 100 deaths caused by starvation due to worsening poverty, the project was truly assistance for highly urgent and humanitarian need for the Kokang people. The JICA Country Assistance Program to Myanmar in 2002 placed eradication of opium poppy cultivation and dissemination of substitute crops and rural development to reduce poverty. Furthermore, it listed the northeast region of Shan state, where KSAZ is located, as a focused area for assistance. Thus, the project was in line with Japan's assistance policy.

Based on the above, this project was highly relevant to the country's development plan and development needs, as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Effectiveness and Impact⁷ (Rating: ③)

3.2.1 Effectiveness

3.2.1.1 Some Issues to be Considered for Evaluating Effectiveness

There were 5 outputs agreed at the time of project planning. However, there was difficulty in analyzing the difference between the before and after data since the baseline data for the outputs had not been recorded in the planning stage as explained in “2.3. Constraints during the Evaluation Study”. Therefore, the data at the time of the project planning were also collected during the ex-post evaluation as much as possible.

“Living condition at the pilot sites improved” was added to the existing indicator to evaluate effectiveness. Because the meaning of the Objective Indicator of Project Purpose 2, “Good examples of successful experiences are obtained from the project's activities in the pilot areas” was not well defined; and secondly, an additional indicator is necessary to comprehensively evaluate both the emergency support (Project Purpose 1) and development support (Project Purpose 2) of the project. In order to evaluate the additional indicator, differences between before and after the project were studied by conducting a face-to-face beneficiary survey of 200 beneficiaries (villagers)⁸ in 6 pilot village tracts. Furthermore, two activities, 1) water supply facilities in Taukshwe village tract, and 2) promotion of Kokang handicrafts planned in the project were terminated due to the conflict in 2009. Thus, they were excluded from the evaluation on effectiveness. Details on the achievement level of the respective outcomes are shown in the attachment.

3.2.1.2 Achievement of Project Purpose

The project provided emergency support to help farmers break out from poverty and to gain an understanding of the upcoming project activities through the support. After confirming the outcome of the emergency support, the project implemented development assistance including improved agricultural techniques, livelihood improvement by organizing villagers' groups, and development of school and health facilities to further improve the living standard in the region. Furthermore, the project expects that KSAZ will continue livelihood development activities based on cultivation of substitute crops for opium poppy after a series of successful examples were observed by KSAZ government and villagers while development assistance was implemented by the project.

In order to measure these purposes, indicators were set for both emergency and development support at the time of project planning. Achievement of the Project

⁷ Sub-rating for Effectiveness is to be put with consideration of Impact.

⁸ Random sampling was used to select respondents.

Purpose based on the set indicators are discuss below.

(1) Achievement Level of Emergency Support

Project Purpose 1 on emergency support was “Critical situation of people in poverty right after the eradication of opium poppy cultivation is mitigated” The indicators used to measure Purpose 1 and its actual achievement are shown in Table 2.

Table 2 Achievement of Project Purpose 1

Project Purpose	Indicators	Actual
Critical situation of people in poverty right after the eradication of opium poppy cultivation is mitigated	<ul style="list-style-type: none"> • Food self-sufficiency period extended and kept for more than 6 months a year. • Mortality rate (malaria) is controlled and is below the national mortality rate. 	<ul style="list-style-type: none"> • According to Department of Agriculture (DOA) data, the food self-sufficiency date was extended from 4 months before the project to 6 months at the time of emergency support. • According to MOH data, the number of malaria patients and related deaths were over 4,000 and 270 people, respectively, from 2003 to 2004 in Kokang. However the number of deaths related to malaria was only one person at the time of project completion.

During the emergency support, crop seeds for food security and bed-nets were distributed; and a road was renovated to mitigate the critical poverty situation in Kokang(output 1). As for crop seeds, 30 tons of rice seed and maize and 1,047 tons of fertilizer were distributed to 239 villages. According to interviews with village tract leaders and farmers, the emergency support helped to increase agricultural production, especially when it achieved an immediate increase in food crop production during an urgent situation. As for the effect of bed-nets, it was confirmed that massive prevalence of malaria has not been reported since 2004. Therefore, it was concluded that the distributed malaria nets contributed to the prevention of a malaria outbreak. As for road development, renovation of 43 kilometers of road between Tarshwetan and Konkyan made it much easier to transport people and goods. It used to take 6 hours to travel the distance during dry season before the project, which was shortened to 2.5 hours after the project. This made it possible to move people and goods even during the rainy season. Furthermore, the road helped the efficient operation of emergency support conducted by other development partners such as the UN and NGOs.

Since a critical situation in Kokang was mitigated during the project period as described above, Project Purpose 1 was achieved.

(2) Achievement Level of Development Support

Project Purpose 2 was, “Successful experience of implemented with collaboration⁹ of Myanmar government and Kokang Special Region No.1 and villagers’ self-reliant participation¹⁰ are demonstrated mainly in the Pilot Areas¹¹.” The indicators to measure Project Purpose 2 and the actual achievement results are shown in Table 3.

Table 3 Achievement of Project Purpose 2

Project Purpose	Indicators	Actual
Successful experience of implemented with collaboration of Myanmar government and Kokang Special Region No.1 and villagers’ self-reliant participation are demonstrated mainly in the Pilot Areas	<ul style="list-style-type: none"> • Good examples of successful experiences were obtained from the project's activities in the pilot areas. • Livelihood improved in the pilot areas (this indicator was added at the time of ex-post evaluation). 	<ul style="list-style-type: none"> • Good examples were observed such as continuing farming activities, improving farming techniques and living conditions by developing the water supply system, raising animals through a revolving system, and further development of the education and health environment. • Villagers’ livelihood had improved due to an increase in household income.

In the development assistance, three components were undertaken in order to develop the region, namely 1) establish and improve the farming system, 2) establish community-based livelihood improvement activities, and 3) improve health conditions and the educational environment. The study confirmed that the outcome of these activity components had been achieved. Good examples of three components acknowledged by project stakeholders are described below.

Establish and improve the farming system

After eradicating opium poppy, farmers began producing substitute crops such as rice and maize. However, they needed to improve production because substitute crops required more farming techniques and knowledge than opium poppy production. The project undertook to develop the capacity of the DOA staff in KSAZ, to develop and

⁹ Kokang people exchanged a cease-fire agreement with Myanmar government in 1989 and became a special region No. 1 of Shan state and later became a self-administered zone in 2009. A certain number of rebels have still existed in KSAZ and the situation of the area is still unpredictable. Also due to the language differences, field based information in KSAZ cannot be entirely grasped by Myanmar government. When Myanmar government undertakes any activities in villages in KSAZ, cooperation with KSAZ government officers who have a network with village tract leaders and village leaders is dispensable. There are not much project experiences in cooperation between Myanmar government and KSAZ government, “collaboration” was stressed in the Project Purpose 2 even though a cooperation of two parties may be considered as a not special matter.

¹⁰ Project beneficiaries were located in mountain remote area and most of beneficiaries did not have a mean of transportation or communication tool before the project. Language was also an issue for villagers. Thus, “self-reliant participation” was stressed in the Project Purpose 2 for the villagers to improve their living condition themselves in case of if there is no assistance provided by outsiders.

¹¹ Based on the interviews with Project counterparts, “Successful experience...are demonstrated mainly in the Pilot Areas” was understood that the techniques and knowledge learned through Japanese assistance were tried by farmers and some successful examples were recognized by stakeholders in this evaluation.

renovate the Nali farm and Konkyan extension center, and to support increased production of subsistence crops (rice and maize) by distributing excellent varieties to farmers. Furthermore, where farming of subsistence crops had been stabilized, it was shown there was an increase and improvement in farming and selling of cash crops.

According to DOA data, the lowland rice variety YJ-202 was cultivated at two village tracts in 2009, which increased to four in 2011 at the time the project was completed. The variety maize seed QPM had been cultivated by 1,500 villages in 2009 and 1,200 villages in 2011¹². Tea and walnut plants were distributed and the required techniques needed to cultivate these plants were transferred by the time the project was completed. While the sale amount of tea was zero at the time of project planning, it had increased to 1,600 kg in 2011, at the time of project completion¹³.

The project transferred Bokashi and compost techniques to the DOA staff; and the DOA staff transferred the techniques to farmers by providing training at the Nali farm and through mobile training. DOA staff and farmers understood that utilization of Bokashi and compost techniques would result in stable and inexpensive production; and farmers were expected to increase agriculture productivity through these practices. More than 2,200 farmers (733 farmers per year) attended Bokashi and compost related training which greatly exceeded the targeted number of 59 farmers per year. The study also found that a certain number of farmers, who had participated in the training, had continued to practice these techniques even at the time of project completion (2014).

The improvements in the farming system and diversity of crops described above resulted in increasing farmers' household incomes. For instance, when 200 farmers (198 valid answers) were asked about a change in their household income from the project planning period to the project completion period, all respondents saw an improvement as shown in Table 4. The change in household income will be further described in section 3.2.2 Impact.

¹² The reasons for the decrease in yield amount of QPM maize were not known because the reasons differed depending on the farmer. According DOA and Japanese experts, some of the reasons were farming techniques, weather, and crop disease.

¹³ This number may not include the sale amount to Chinese enterprises that purchase directly from tea leaf from farmers.

Table 4 Change in Household Income
From Project Planning Time to Project Completion (n=198)

	Did your household income improve from prior to 2004 compared with 2011?
Extremely improved	0%
Very improved	7%
Moderately improved	53%
Slightly improved	41%
Not at all improved	0%
Total	100%

Source: Beneficiary survey of Kokang villagers.

Establishment of community based livelihood improvement activities

Accessibility to villages located in isolated mountains is very bad. Thus, it takes a while for government assistance to reach the villages. Group activities¹⁴ such as water supply management and raising livestock through a revolving system¹⁵ were experimentally introduced in the project in order to improve the livelihood of villagers even if outside assistance is unable to reach the area. There was no traditional culture in Kokang where villagers jointly managed an activity together to improve their livelihood. However, 29 groups in the pilot village undertook income generating activities such as animal revolving activities (pig, water buffalo, cow, and mountain goat) and the number of animals successfully increased in comparison to the initially provided number. Moreover, 9 water supply facilities in 3 village tracts, namely Minchen, Chuntai, Lontan were built or renovated¹⁶. The water facilities reduced the villagers' workload of picking up water and saved hours to allow them to do other tasks such as housework and study. As for the maintenance of water supply facilities, workshops were held in villages where the facilities were built, to teach maintenance techniques and provide maintenance equipment. By the time the project was completed, a community-based livelihood system was developed.

¹⁴ The "Village level approach" in the Project is a method where activities were carried out by grouping villagers.

¹⁵ Domestic animal rental committee was established in village tracts where an animal-raising activity through a revolving fund was carried out. The project provided pigs, goats, and buffalo and the committee rented them out to villagers. The beneficiaries raise, breed the rented animals, and then sell them. The beneficiaries must pay back the amount of money including interest. The procedure is slightly different according to animal type.

¹⁶ In February 9, 2007, a water supply tank built with the participation of villagers at Lonkan village in Minchen exploded. Three villagers died and two were injured (the project partially outsourced tasks such as facility design to a local contractor). A later study found out that the accident occurred due to multiple reasons; however, one of the major factors was poor construction undertaken by the local contractor. JICA accepted that they did not fulfill the management and supervising responsibility as the work ordering party, reconstructed a new facility, and paid compensation to the victims. As a result of this accident, JICA re-checked all the water supply facilities constructed or modified by the project. When any safety concerns were found, it was demolished and reconstructed.

Improved health conditions and educational environment

Five schools with attached facilities such as latrines and dormitories and two regional health centers were built and/or renovated in the project. Literacy education for preschoolers and sanitary education for school children were provided by the MOE and MOH staff members in Kokang, who received technical transfer from JICA experts. According to interviews with villagers, accessibility to education and health care in pilot village tracts improved when compared to the project planning period. It was also found that technical transfers to MOH and MOE staff members in Kokang, putting up posters, and creating and distributing guidelines increased the students' and children's awareness about sanitation.

In addition to the successful examples and outcomes identified for the three major activity components above, there is one more factor to be considered in determining the effectiveness of the project. That is the "collaboration" factor. Project Purpose 2 was to be implemented from 2008 to 2010 after the completion of the emergency support in 2007. However, the project was temporarily suspended as a result of the military conflict between the Myanmar government and KSAZ in August 2009. Consequently, the project period was extended to 2011. Despite this, both the Myanmar government and KSAZ cooperated and completed the project without abandoning it. This is worthy of the "collaboration" stated in Project Purpose 2, and thus highly evaluated.

In contrast, whereas many qualitative outcomes were identified, base line data for numerical indicators set at the time of project planning did not exist and some of quantitative indicators were not monitored during the project. Thus, quantitative evidence to measure achievement was partially insufficient. Due to the reasons above, Project Purpose 2 was mostly achieved.

In summary, a critical poverty situation of the Kokang people was mitigated within two



Picture 1: Elementary school built by the Project. The school is used as a Myanmar public school in the morning and a Chinese private school taught by a Chinese teacher in the afternoon.



Picture 2: A latrine built within School area. The Project aimed to extend sanitary education to children's homes by making children use a latrine at school. Today, most of villagers in Kokang have a latrine at home.

years after the project started due to emergency assistance and regional development activities that were implemented through “collaboration” between the Myanmar government and KSAZ; and community based approach by the development support. Consequently, an increase in household income and an improved quality in livelihood were achieved by the villagers at the time of project completion. Thus, it is concluded that the project achieved its project purpose, whereas quantitative evidence to determine the achievement of outcomes were partly insufficient. Hence, effectiveness of the project is mostly high.

3.2.2 Impact

3.2.2.1 Achievement of Overall Goals

With continuous support from the DOA, it is anticipated that the farmers in in this project in KSAZ will maintain agricultural techniques and cultivate cash crops such as tea and maze (for domestic animals), sugarcane, and walnut, while maintaining food self-sufficiency. Subsequently, this will lead to an increase in income for farmers and an improvement in the overall living conditions of the Kokang residents. Meanwhile, schools and health centers in Kokang will be continuously developed by the Myanmar government.

Two overall goals were established to measure the above outcomes at the time of project planning. The achievement level of these overall goals and the reasons behind the achievement are discussed as below.

(1) Overall Goal 1: Living conditions of the beneficiaries are improved

The indicators to measure Overall Goal 1 and its actual achievement are shown in Table 5.

Table 5 Achievement of Overall Goal 1

Overall Goal	Indicator	Actual
Living conditions of the beneficiaries are improved	Number and content of village meals were improved by 20%	According to the beneficiary survey, quantity, frequency, and quality of village food intake have all improved (Table 6) while the baseline data was not recorded and the 20% planned at the time of the ex-ante evaluation is baseless.

The result of beneficiary survey conducted for 200 villagers in the project pilot village tracts regarding dietary changes is shown in Table 6. In answer to the question, “Did you or any household member worry that your household would not have enough food,” 44% of the respondents answered either “Very often,” “Often,” or “Sometimes” at the time of project planning, which dramatically decreased to 1%, at the time of the ex-post evaluation. To the question, “Did you or any household member have to eat a

smaller meal because there was not enough food,” 10% of the respondents answered either “Very often,” “Often,” or “Sometimes” at the time of project planning, while the answer was “no” at the time of the ex-post evaluation. To the question, “Did you or any household member have to eat fewer meals a day because there was not enough food,” the answers, “Very often,” “Often,” or “Sometimes” decreased from 11.5% to 1%. Therefore, the survey showed that the amount of food for each villager in Kokang today increased compared to the time during project planning.

Food quality has also improved. To the question “Did you or any household member have to eat foods you really did not want to because of the lack of resources to obtain other types of food,” 35.5% of the respondents answered, either “Very often,” “Often,” or “Sometimes” during project planning, while the response dramatically decreased to 1.5% at the time of the ex-post evaluation. A respondent, who had been forced to eat food he did not want to, commented that his family ate food for domestic animals when they did not have food, but today they are able to eat white rice every day.

Table 6 Diet of the People in Pilot Village Tracts (N=200)

	Change in Food Amount						Change in Food Quality	
	Did you or any household member worry that your household would not have enough food?		Did you or any household member have to eat a smaller meal because there was not enough food?		Did you or any household member have to eat fewer meals a day because there was not enough food?		Did you or any household member have to eat foods you really did not want to because of the lack of resources to obtain other types of food?	
	2004 Planning	2014 Ex-post Evaluation	2004 Planning	2014 Ex-post Evaluation	2004 Planning	2014 Ex-post Evaluation	2004 Planning	2014 Ex-post Evaluation
Never	24.5%	97.5%	85.0%	99.5%	88.5%	99.0%	40.0%	98.5%
Rarely	31.5%	1.5%	5.0%	0.5%	5.5%	1.0%	24.5%	0.0%
Sometimes	36.0%	1.0%	10.0%	0.0%	6.0%	0.0%	27.5%	1.5%
Often	7.5%	0.0%	0.0%	0.0%	0.0%	0.0%	7.5%	0.0%
Very Often	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Source: Beneficiary survey of Kokang villagers

Two major reasons for the improved diet of the Kokang citizens were discovered through the survey. One reason was that many farmers are now able to cultivate food crops at their farm as a result of the improved farming system supported by the project. Many farmers said they now ate home-grown rice and vegetables. Another reason is that many farmers had started to cultivate cash crops and gradually improved their quality. Their income improved through the sales of these crops and consequently, the farmers are able to purchase food from China using cash income.

The survey results showed that household income during the project planning period and the project completion period, “Slightly Improved (41%)”, “Moderately Improved (53%)” and “Very Improved (7%)” (Table 4) whereas the results during the project completion and ex-post evaluation periods were 17%, 74%, and 9%, respectively. The household income of villagers in the pilot village tracts had further increased after the project was completed.

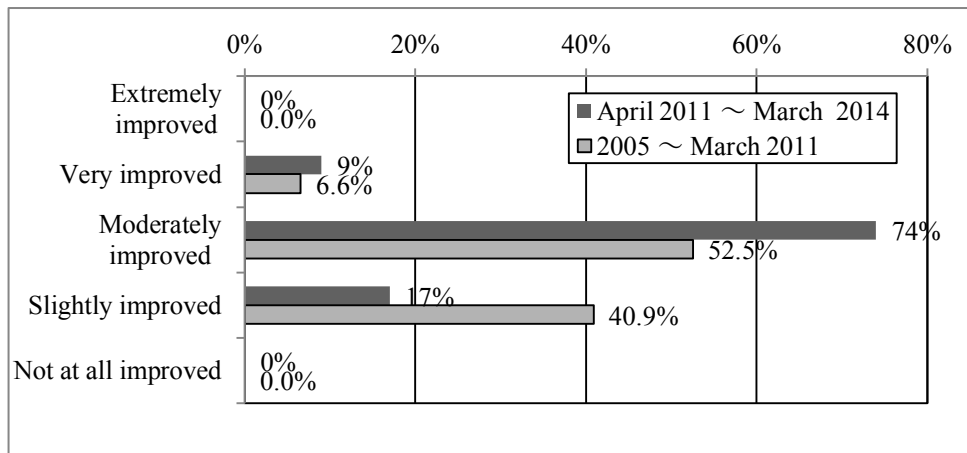


Figure 1 Change in Household Income (n=198)

Source: Beneficiary survey of Kokang villagers

The possible reasons for the improved income are listed in Table 7. The top three reasons are 1) changed crops (163 farmers), 2) changed inputs (85 farmers), and 3) ownership of domestic animals (83 farmers).

Table 7 Possible Reasons for the Improved Household Income
Comparison between the Project Planning to Ex-post Evaluation Periods
(n=200 / multiple answers allowed)

Unit: farmer	
Changed crops	163
Changed infrastructure	1
Changed farm techniques	26
Installed new farm equipment	0
Changed inputs such as fertilizer, pesticide, and herbicide	85
Ownership of domestic animals	83
Others	130

Source: Beneficiary survey of Kokang villagers

In a comparison of income generating crops, most farmers produced maize (167 farmers), rice (151 farmers), tea (142 farmers) during the project planning period. However, the cash crop had diversified at the time of the ex-post evaluation: sugarcane

(69 farmers), walnut (47 farmers) followed by the three top cash crops such as maize (159 farmers), tea (162 farmers), rice (93 farmers).

The amount of tea sold increased from 1,600 kg at the time the project was completed to 3,000 kg at the time of the ex-post evaluation. This is because private Chinese companies have been buying sugarcane and tea leaf directly from the Kokang farmers. The project was initiated before the Chinese companies began actively purchasing agricultural products and the impact of the Chinese market was considered in depth during the assistance for cash crop cultivation in the project. In other words, it is assumed that the Chinese companies began noticing the agricultural products in Kokang because the farming techniques had improved in the region due to the project¹⁷. As a result, Chinese companies purchased more agricultural products in Kokang and the amount sold increased accordingly. Therefore, it was concluded that the project greatly contributed to increasing farmer income despite the major impact the Chinese companies have had.

Table 8 Income Generating Crops
(n=200 / multiple answer allowed / unit: farmer)

	Planning Time (2004)	Ex-post Evaluation (2014)
Rice	151	93 ↓
Maize	167	159 ↓
Buckwheat	3	0 ↓
Tea	142	162 ↑
Walnut	9	47 ↑
Gum	4	9 ↑
Coffee	0	1 ↑
Sugarcane	0	69 ↑

Source: Beneficiary survey of Kokang villagers

Table 9 shows data on changes in the living condition in the pilot village tracts. As shown, 70% of the respondents felt their health condition, education environment, and overall living condition had “Moderately Improved” or “Very Improved.” Poverty in the region had been alleviated.

¹⁷ Based on an interview with DOA staff.

Table 9 Changes in the Living Condition in the Pilot Village Tracts
(Comparison between the Project Planning and Ex-Post Evaluation Periods)

	Health Condition and Education Environment (n=198)	Overall Living Condition (n=199)
Extremely improved	0.0%	0.0%
Very improved	48.0%	12.6%
Moderately improved	31.8%	63.8%
Slightly improved	20.2%	23.6%
Not at all improved	0.0%	0.0%
Total	100%	100%

Source: Beneficiary survey of Kokang villagers

In assessing the reasons behind the improved living condition based on interviews with the MOH and villagers, it was found that most of the homes in Kokang today (2015) had latrines, in addition to the school; and health conditions had largely improved from the project planning period. The aim of the project was that health education taught to children at school would be extended to their family through family discussions at home¹⁸. Thus, it was concluded that the dissemination of latrines at village homes was one of the project's achievements. As for other achievements, the number of children who were immunized increased from 480 at the time of project completion to 768 during the ex-post evaluation. Deworming and vitamin A distribution continues even today (2014). The regional health service centers built by the project have been succeeded by AMDA Multi-sectorial & Integrated Development Service (AMDA-MINDS)¹⁹.

The government of Myanmar has pushed forward with building elementary schools and there is a learning environment in Kokang if it is in Burmese. The school attendance rate increased from 29.03% in 2010/2011 to 79.98% in 2013/2014 in the Laukai township and 10.86% to 61.43% during the same period in Konkyang. The situation is better today (2014) compared to the project completion period (2011). Some schools divide school hours into two shifts—an afternoon class is taught in Burmese and a morning class in Chinese. The teacher for the Chinese class is hired privately using money collected from villagers who are interested in teaching their children in Chinese²⁰. According to an interview with village tract leaders, more children are able to learn in Chinese today because the villagers' income has improved.

¹⁸ Based on an interview with MOH and MOE staff.

¹⁹ AMDA-MINDS is a non-profit organization which specializes in the social development sector. The organization has been supporting school children, regional health service centers, and the establishment of basic maternal and child health system since 2004 in the Kokang region.

²⁰ Although the official language in Myanmar is Burmese, a common language used in Kokang is Chinese. Since Kokang shares its border with China, many families prefer that their children learn Chinese so that they can use their language skills to do business with the Chinese in the future.

In summary, by continuing agricultural techniques, villagers are able to cultivate and sell cash crops such as tea, maize (for domestic animals), sugarcane, and walnut, in addition to crops for home consumption. Subsequently, this led to increased income for farmers. An improved education and health environment has been continuously undertaken by the government of Myanmar and NGOs as well. As a result, Kokang villagers have achieved an overall improvement in their living condition including the quality of their diet. Therefore, Overall Goal 1 has been largely achieved.

(2) Overall Goal 2: Successful experiences of the poverty reduction and rural development in Kokang Special Region No. 1 is demonstrated as a rural development model of post opium poppy cultivation areas

The indicators to measure Overall Goal 2 and the actual achievement are shown in Table 10.

Table 10 Achievement of Overall Goal 2

Overall Goal	Indicator	Actual
Successful experiences of the poverty reduction and rural development in Kokang Special Region No.1 is demonstrated as a rural development model of post opium poppy cultivation areas	A significant number of cases of successful experiences appreciated by respective departments, agencies and authorities as well as people are identified.	<ul style="list-style-type: none"> ▪ Successful examples were identified in agriculture and school health components. ▪ The project was well appreciated by the government of Myanmar and consequently a similar project has been undertaken by JICA.

As discussed in Effectiveness, three components, 1) establish and improve the farming system, 2) establish community based activities to improve livelihood, 3) improve the health condition and educational environment were undertaken in order to develop the region. Continuation of various activities of these components was identified at the time of the ex-post evaluation and some of the on-going activities were acknowledged as successful examples by village tract leaders and village leaders.

For example, for component 1, “establish and improve the farming system,” cultivation techniques for tea and walnut supported in the project had largely extended among the pilot village tracts. According to an interview of a farmer in Manlow, the cultivation method for tea had changed from random to terrace planting as a result of Japanese assistance. Consequently, this new practice increased the amount of tea production. These new methods were also applied in neighboring villages.



For component 3, “improve the health condition and educational environment to develop the region,” the school health guideline developed in the JICA project was distributed to all elementary schools in Kokang and was used as a textbook on health guidance by teachers. At the New Nyopyinsipa Elementary School in Lontan, which the evaluation team visited, we observed that latrine usage and hand washing were thoroughly implemented. Personal sanitation had improved and subsequently, diarrhea, skin disease, and worming had also been prevented.

These are only a few successful examples, but the government of Myanmar recognized many other positive effects had been brought into the region following project completion. The government of Myanmar believes the project is a good example that had successfully improved farmers’ household income and seeks to apply the project in other areas where a transition from opium cultivation has been undertaken. To this end, the Project for Eradication of Opium Poppy Cultivation and Rural Development in the Northern Part of Shan State (2014-2019) was undertaken by JICA.

According to an interview of the United Nations Office of Drugs and Crime (UNODC), UN agencies and NGOs had been undertaking Kokang and Wa Initiative (KOWI) in transitional areas from opium poppy cultivation since 1998. The activities under the initiative are mostly in line with the project. This development method had been established as a regional development model for the area shifting from opium to substitute crop cultivation. As stated in the Myanmar Opium Survey 2014 published by UNODC, the cultivation area of opium increased from 21,600 hectares in 2006 to 57,600 hectares in 2014. Thus the challenge today is how to prevent villagers from returning to opium poppy cultivation. Meanwhile, KSAZ has been maintaining an opium free zone since 2003 by strengthening legal control and increasing farmers’ household income according to the UNDOC analysis. For the latter case, the Myanmar Opium Survey 2014 showed a causal relationship between opium poppy cultivation, family income, poverty, and food security that was largely related to opium poppy

cultivation. In order to reduce the cultivation, the report suggested that an alternative income generating means had to be developed for a community in transition. The project has been acknowledged by international organizations based on the post-evaluation results that concluded that family income and livelihoods had increased in KSAZ due to substitute crop cultivation. Therefore the project is an exemplar model of regional development in the transition from opium poppy cultivation. Thus, the project has largely achieved its overall goals.

3.2.2.2 Other Impacts

Another noteworthy impact of the project deals with the trust-building process between the Myanmar government and the KSAZ and its officials. Because the principal language used by KSAZ residents is Chinese, there have been limited opportunities for the government and KSAZ officials to host dialogues and form collaborative business schemes. When asked about other positive implications in the beneficiary survey, both parties responded optimistically (“increased trust,” “greater mutual understanding”). Even following the incident in 2009, the Myanmar government and KSAZ officials have been able to maintain a cooperative relationship when necessary. They have not impaired the relationship, have strived to preserve the goals of the project and have kept a certain distance from each other during the ex-post evaluation. Thus, from a peacebuilding viewpoint, this project has contributed to bringing about these positive impacts.

Based on the above results, the objectives that were listed targeted via project implementation—“1. Critical situation of people in poverty right after the eradication of opium poppy cultivation is mitigated” and “2. Successful experience of implemented with collaboration of Myanmar government and Kokang Special Region No. 1 and villagers’ self-reliant participation are demonstrated mainly in the Pilot Areas”—were generally achieved. Moreover, goals that were given precedence have also been achieved, i.e. the livelihood of the KSAZ residents improved, a regional development model that was created in areas which transitioned from opium poppy cultivation has been recognized both domestically and internationally, and a relationship of trust was fostered between the KSAZ and Myanmar government. In view of the fact that these effects were observed as planned, the effectiveness and impact of the project are high.

3.3 Efficiency (Rating: ②)

3.3.1 Inputs

Inputs	Plan	Actual
(1) Experts	6 Long-Term (chief advisor / regional development, project coordinator, agriculture (training and extension), farming system, health/education, livelihood improvement) Short-Term (based on request)	10 Long-Term (302.93 MM*) 4 Short-Term (1.19 MM as of terminal evaluation. MM as of ex-post evaluation is unknown)
(2) Trainees received	As necessary	5 persons
(3) Equipment	Seed, fertilizer, medicine, construction material for such as road, agriculture extension center, demonstration farm, water facility, and renovation of meeting rooms, etc (Total 2 million yen)	26 million yen 335 million yen for others (emergency supplies including mosquito nets, seeds, and construction materials)
(4) Others	Trainings and seminar	Conducted technical exchange program in Nepal
Japanese side Total Project Cost	About 900 million yen	About 1,074 million yen
Myanmar side Operational Expenses	Allocation of project counterparts, other project assistants, and operation cost for project office	Total 20 million kyat (about 1.4 million yen (1 JPY= 0.070 MMK) as of 1 st February 2010)

* MM stands for man month.

3.3.1.1 Elements of Inputs

In a comparison of the actual versus the planned input components, no major problem was found since the changes made were minimal and limited to project cost (relevance of project cost will be discussed in 3.3.3. Project Cost). According to interviews with the project counterparts and the beneficiary survey results, the level of satisfaction in the quality and quantity of equipment provided by JICA was generally high. In contrast, many of respondents felt that the quantity and quality of Japanese experts were not satisfactory. Some of the reasons for this may be due to the following: 1) Only one or two experts were continuously assigned for each sector and the project included multiple sectors, 2) Entrance to the project sites was restricted since 2009 due to the Kokang incident, and 3) The term of service expired for the agricultural expert during the project extension period. Hence, a livelihood expert had to take over the tasks on behalf of the agricultural expert. In summary, although there were minor issues with the quality and quantity of Japanese experts, the relevance of the provided equipment was high. Thus, relevance of the input components is generally high.

3.3.1.2 Project Cost

The actual project cost was approximately 1,074 million yen. This was significantly

higher than the planned cost of 900 million yen. The actual budget was higher than the planned budget (119% of the original plan). The increased amount was used to enhance road safety by providing traffic signs and safety fences for the road (Tarshwetan ~ Konkyan); and JICA was forced to take action due to a road accident that occurred in Kokang during the project²¹. Some of the actual additional spending was used as emergency assistance for a farmer who lost his house and seeds in a fire. The additional budget was approved after reviewing their appropriateness. Thus, no problem was observed concerning expenditure.

3.3.1.3 Period of Cooperation

The actual project period was from April 2005 to March 2011. This was longer than the planned period of five years from April 2005 to March 2010. The project had been progressing well; however, it was suspended in August 2009 due to a military conflict. As of March 2010, some of the activities listed in Table 1 in section, 1.3.3 Recommendations, at the time of the Final Evaluation were not completed. The project was extended for one year in order to complete these on-going activities and the extension was necessary to achieving the project purpose. The actual project period, excluding the suspended period (from August 2009 to March 2010), was 107% longer than the planned period. It took a certain amount of time to reorganize project activities due to the suspension; and the actual period was slightly longer than the planned period.

Although the project cost and period exceeded the plan, the extension of the project period was unavoidable due to an unexpected situation. Therefore, the efficiency of the project is concluded as fair.

3.4 Sustainability (Rating: ②)

It is anticipated that KSAZ farmers in this project will continue farming alternative crops without reverting back to opium poppy cultivation and will further improve their income by producing cash crops such as tea and walnut, while maintaining food self-sufficiency. It is also anticipated that the overall living conditions of Kokang residents will continue to improve as the Myanmar government develops schools and health centers in Kokang. Consequently, it is expected that the successful experience in transitioning from opium poppy to substitute crop cultivation will be recognized by the Myanmar government and

²¹ While a vehicle carrying JICA experts passed by a bus travelling in the opposite direction, one of wheels of the bus fell off and the truck went down a cliff. The truck driver and 4 passengers died, 4 were seriously injured, and 4 were slightly injured. There was no contact between the JICA vehicle and the bus and all the Japanese experts were safe. Based on the results of an investigation, the Myanmar military, Myanmar police, KSAZ, and village tract leaders all agreed and concluded that the JICA vehicle had no direct relation to the accident.

international organizations and similar development practices will be carried out in other areas.

As discussed in the section on Effectiveness and Impact, the expected objectives were achieved. The policies and organizational, technical, and financial factors that will be needed for the project to continuously achieve its objectives are described below.

3.4.1 Related Policy and Institutional Aspects for the Sustainability of Project Effects

Myanmar's policy on drug eradication was maintained at the time of the ex-post evaluation as it was since the time of planning. Myanmar agreed to undertake the Crime and Drug Law Enforcement Program (2014-2017) in cooperation with UNODC. According to interviews with KSAZ representative, it was confirmed that KSAZ places high priority on cultivating cash crops such as tea and walnut and to continue improving farmer income without going back to opium poppy cultivation.

The project is consistent with the policies of the Government of Myanmar such as "15 year-plan on opium poppy eradication" and "30 years Development Master Plan for Ethnic Minorities," and the development needs of the Myanmar government and the beneficiaries in the Kokang Self-administered Zone (KSAZ). The project counterpart, PBANRD, established in 1992 has been developing border areas by cultivating opium substitute crops to meet 1) the nation's obligation to eradicate opium and 2) improve the social as well as economic conditions of ethnic minorities in border areas while eradicating opium poppy. It was confirmed that PBANRD's institutional policy remained consistent during the ex-post evaluation.

3.4.2 Organizational Aspects of the Implementing Agency for the Sustainability of Project Effects

Major project activities, agricultural development, school facilities, health facilities, and water facilities they were managed by the DOA, MOE, MOH, respectively, as well as village tract leaders or village leaders during the project period. The study confirmed that the institutional arrangements have remained consistent at the time of the ex-post evaluation.

As for agricultural development, the main activity of the project, the number of DOA staff members increased from 5 to 8 after the project was completed. It may appear that eight staff members are inadequate to support farming activities in the entire KSAZ. However, since the common language used in KSAZ is Chinese, increasing the number of DOA staff members according to the population of KSAZ is not realistic since the staff members only speak Burmese. DOA's agricultural techniques have been improving due to continuous research activities at the Nali farm and the Konkyan extension center even

after project completion. However, a system to disseminate the DOA research outputs to farmers, the final beneficiaries of the project, needs to be improved and this will further explained in section 3.4.3 below.

Regarding cooperation between the Myanmar government and KSAZ, a good relationship has been maintained as KSAZ provides support for the project as requested by the Myanmar government. When the ex-post evaluation was conducted, an entrance permit for the external evaluator was issued by PBARD, and the meeting between village tract leaders and study site in the villages were efficiently arranged by KSAZ.

Based on the above, no major problem was found in terms of each institution's responsibility. However, a few problems were observed in the systematic transfer of agriculture technology and knowledge to farmers.

3.4.3 Technical Aspects of the Implementing Agency for the Sustainability of Project Effects

Nine out of 19 project counterparts (1 person from PBANRD, 3 persons from DOA, 1 person from MOH 1 person from MOE, and 3 persons from KSAZ) still remained in the project area at the time of the ex-post evaluation. As for the technical transfer of farming skills, which was the largest input in the project, the activities to improve farming at agriculture extension centers such as crop improvement, seed breeding, seed exchange and dissemination, identification of cash crops, training on organic fertilizers, and mobile training in the mountainous areas are still continued by DOA today. Although the scale of these activities have been reduced in comparison to the project implementation period due to limitations of the transport system and language barriers.

As for technical transfer to farmers, the direct beneficiary of the project, it was found that many farmers who responded to interview, had been looking for new farming techniques and information about new cash crops. However, the information and knowledge on new farming techniques have not reached the farmers because a communication system between DOA and the farmers does not exist.

The JICA project, "Project for Eradication of Opium Poppy Cultivation and Rural Development in the Northern Part of Shan State," started in 2014 and include Konkyan and Manlow in KSAZ as the target areas. Technical transfer will be undertaken by the DOA located in KSAZ for farmers in Konkyan and Manlow. New farming techniques will be transferred to these two areas through this ongoing project; however, other measures will be needed for the remaining areas in KSAZ.

With regard to sustainability of technology and knowledge of other sectors, no major issues were observed. Education, health, and water facilities supported in the project are each respectively managed and maintained by MOE, MOH, and villagers. It was also

confirmed that school health activities undertaken by MOE and MOH were prepared as a guideline and distributed to all elementary schools in Kokang. The guideline has been used daily under supervision of the school principals. Activities to raise livestock through a revolving system undertaken to generate farmers' income was not as important as the other activities, some livestock perished because animal breeding techniques and knowledge were not adequately transferred to the villages²². Based on the above, the technical aspects of the project stakeholders were generally sustainable.

3.4.4 Financial Aspects of the Implementing Agency for the Sustainability of Project Effects

The actual expenditure of KSAZ was 63.57 million kyats in 2012/2013, 69.26 million kyats in 2013/2014, and 122.34 million kyats in 2014/2015 according to the information provided by Shan state²³. Much of the KSAZ budget was determined by the Shan state and the central government has been allocating the budget to support ethnic minority groups since 2013²⁴. This caused a large increase in the actual expenditure of KSAZ in 2014/2015. Furthermore, the study confirmed that health centers, schools, water facility development have been continued by the Myanmar government and international NGOs such as AMDA. Although financial information about KSAZ is not known since it is not published, the financial environment to sustain the project outcome does not appear to be a problem overall based on the interview findings, the increase in the villagers' household income, and the fact that villagers can take independent action to improve their livelihoods as described in section 3.2.2 Impact²⁵.

3.4.5 Other Aspects Affecting the Sustainability of Project Effects

Myanmar government troops clashed with Kokang renegade groups on February 9, 2015; and it is reported that a total of over 140 people from both sides had died by March 2015²⁶. Although the details are unknown due to the restricted access to Kokang, there is

²² Activities to raise livestock through a revolving system were introduced to farmers in order to obtain cash because they did not have cash in hand at that time. The importance of sustaining the activities has lowered since the farmers' income increased due to the project.

²³ Fiscal year in Myanmar is from 1st April to 31st March as same as Japan. 2014/2015 is the expenditure until the end of February 2015 and does not include expenditure in March. Thus, the actual amount could be larger than the stated amount.

²⁴ Budget for Ministry of Progress of Border Areas and National Races and Development Affairs has also largely increased from about 2,500 million yen in 2010/2011 at the time the project was completed to about 4,500 million yen in 2012/2013.

²⁵ Activities to improve farming techniques has been continued by DOA and also undertaken by farmers themselves since their income has improved. The activities can be continued without government's financial support. A certain number of schools and clinics were constructed and these facilities will not need a large amount of budget as long as each facility is managed by users. The water facilities have been developed by NGO and maintained by villagers. Therefore, a particular budget will not be needed to continue activities introduced by the project.

²⁶ An article from Nikkei News, 1st March 2015.

information that farmers cannot harvest and sell crops due to continued fighting.

A few organization-related problems were observed that impeded continuous technical transfer to farmers. Movement by Kokang rebels also cannot be anticipated. Therefore, sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

With the goal of preventing the Kokang Self-administered Zone (KSAZ) residents from reverting back to opium poppy cultivation and improving their livelihoods, this project first launched its emergency assistance to mitigate critical poverty in the region, followed by a comprehensive scheme to improve farming technology needed for alternative cropping and to improve the education and health environment. Because these goals complement Myanmar's minority development policies—such as the “15 Year-Plan of Opium Eradication”—along with the KSAZ's development needs and Japanese assistant policies, the relevance of this project is high. Furthermore, according to the results of the beneficiary survey carried out at the 6 pilot village tracts, when comparing the pre-project and post-evaluation situation, the villagers experienced an increase in income due to the diversification of crops and improvements in the education and health environments. These changes in the quality of life are acknowledged by the villagers. The Myanmar government has also shown high regard for the project, recognizing that the series of achievements exemplify a successful example of sustainable transition from opium poppy cultivation. In addition, through this project, the Myanmar government and KSAZ have been able to build a greater relationship of trust—which has had a positive impact in terms of peace and conflict resolution. Hence, the effectiveness and impact are regarded to be high. However, because the cooperation period and finances slightly exceeded the project plan—despite the fact that all inputs were properly utilized—the project's efficiency was evaluated as fair. Its sustainability is generally not considered to be a problematic issue: drug eradication policies have been maintained during ex-post evaluation, and in the area of finance, a development assistance budget specifically targeted for opium poppy-cultivating regions has been created since 2013. Nevertheless, because the system to transfer farming technology from the Department of Agriculture to the farmers is still not adequately equipped, and the movements of anti-government forces cannot be predicted, the project's sustainability has been undermined by a number of problems. Hence, the sustainability of project effects has been assessed as fair. In light of the above, this project is evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations to DOA and PBANRD

It has been over ten years since the farmers changed their agriculture practice from opium poppy to food crop cultivation. These farmers in the Pilot Village Tracts have the strong will to further improve their farming technology and their income. It was not easy to reach the Village Tract leaders during the project since mobile phones were not yet widely used. Today many of the Village Tract leaders carry mobile phones and they can contact each other without the need to visit each other. It is recommended that the following action be taken in order to achieve sustainable development of farming technology and regional development in the Pilot Village Tracts.

- To find out the mobile telephone numbers of Pilot Village Tract leaders and develop a contact network to enable DOA and Village Tract leaders to exchange information on better farming technology.
- Use the above proposed phone network to share information with motivated Village Tract leaders and village leaders about potential cash crops and the market study results related to crop sales that are identified in JICA’ s ongoing “Project for Eradication of Opium Poppy Cultivation and Rural Development in Northern part of Shan State (2014-2019).”

4.2.2 Recommendations to JICA

JICA should support the DOA and PBANRD in their effort to undertake the activities recommended above in the ongoing “Project for Eradication of Opium Poppy Cultivation and Rural Development in Northern part of Shan State.”

4.3 Lessons Learned

1. Material support and infrastructure assistance are an effective way to build trust with the residents in a short period of time.

Because Kokang had imposed travel restrictions for foreigners and limited foreign aid during the initial stages of the project, it was essential to first build a relationship of trust with the governing body of the Kokang Self-Administered Zone, district leaders and the villagers. The early projects that were implemented as emergency aid—from the distribution of agricultural seeds and mosquito nets to road maintenance—as well as those implemented under development assistance such as the improvement of school, health and water supply facilities have noticeably improved the living standards of all residents in the Pilot Areas, which are still greatly appreciated by the villagers to this day. In particular, road improvement and maintenance has significantly improved the livelihood of the residents and continues to be commended in the surrounding villages of Konkyang.

Because “soft aid” projects that aim to develop, for instance, farm management and technologies and literacy education require a longer time frame for their outcomes to be achieved, it is constructive for JICA to first carry out “hard aid” schemes to establish a relationship of trust with the beneficiaries and build a presence in the region at an early stage. This will facilitate the subsequent implementation of “soft aid” projects.

2. By incorporating a village-level approach, the project’s sustainability can be ensured.

In cases where the Pilot Areas are located in remote areas or the budget for the projects’ operation and maintenance following their completion is difficult to secure, cooperation at the village level becomes a crucial factor to the sustainability of the projects’ outcomes. This Project implemented the livestock revolving system and improved the operation and management system of water supply facilities by incorporating all the beneficiaries (village-level approach). The latter project, in particular, has continued to function smoothly post-completion. Reflecting on the success of the operation and management of the water supply facilities, it is assumed that the same village-level approach can be integrated into the refurbishment of schools in Lontan, despite the lack of a national budget. The Japanese Red Cross Society has also utilized the same approach to aid school reconstruction in Myanmar following Cyclone Nargis, while transferring the knowledge and techniques of school operation and management primarily to parents and guardians, the Red Cross Society also provided supplies and equipment necessary to repair the buildings and, although small in amount, offered a fund for the operation of the schools. Even after the completion of the project, the school and parents of the students have continued to work together to design schemes to maintain these schools. In cases where the Pilot Areas are situated in inaccessible locations or the budget of the projects’ operation and maintenance cannot be anticipated in advance, it is desirable to strategize a plan to foster independent development in the pilot sites for ensuring project sustainability.

3. For poverty-reduction assistance projects in remote areas that are centered on improving farming technology, it is crucial to ensure the market, in addition to providing farming technology.

This project strategized to raise the farmers’ income via cash crop cultivation that would improve the livelihood of the people in the region. However, it cannot be denied that the project owes part of its success to the Chinese market. More than 80% of the sugarcane, tea and walnuts produced in Kokang are directly purchased by the Chinese private businesses and sold in the Chinese market. Using the profit made from selling these crops, farmers in the region buy rice, corn and vegetables that are imported inexpensively from China. Because a number of the project’s Pilot Areas are located in inaccessible, mountainous

regions with no means of transport for the farmers to sell their crops, it is difficult to sell the produce in the market without the presence of Chinese private companies. In other words, if these Chinese companies did not directly purchase crops from Kokang, the project most likely would have only been able to temporarily avoid a crisis situation without achieving sustainable results for the farmers. In implementing similar projects (poverty reduction assistance projects that are centered on improving farming technology) in remote areas, it is essential to verify during the planning process that 1) the market for selling the crops is ensured, and 2) the system to transport these crops from the farmers to the market is established, since transporting goods in remote areas is problematic. In cases where these points are not adequately met, they should be added to the project's "Output," and experts should assist with appropriate activities.

4. When a project is undertaken in special regions (self-administered zone, politically unstable, national border, ethnic minority, remote area), it is important to coordinate it with other JICA assistant schemes or projects of other organizations in advance since Japanese experts cannot be dispatched due to safety reasons.

There are safety and security concerns about experts working on long-term projects in special regions like Kokang (self-administered zone, politically unstable, national border, ethnic minority, remote area). In the health and water supply sectors, AMDA, has employed residents of Kokang since 2004 to today as part of the JICA Partnership Program, and they have continued to expand their projects. These AMDA-guided activities have led to the successful and continuous outcomes of this project in the health sector. Hence it is recommended that these collaboration schemes are implemented from the initial planning stages with various NGOs (cooperation aid schemes other than JICA).

5. When baseline data has not been published or is unobtainable, a baseline study should be undertaken even on a small scale, establish indicators and agree it with the recipient country.

The indicators established in the project design matrix (PDM) did not provide information on baseline data and a way to obtain this data. Therefore, it was difficult to evaluate the effectiveness and impact in the ex-post evaluation. For example, the indicator for output 1 was "agriculture production (food crops) of the beneficiaries increased by 10% through agriculture emergency aid," but agriculture production data for Kokang was not available and the reasons supporting the value of "10%" was not explained. It was assumed that indicators were established temporarily. However, it becomes difficult for the evaluator to measure the project outcome appropriately when ambiguous indicators are established during the planning period. The outcome indicators should be monitored consistently from

the period of project implementation to ex-post evaluation.

When baseline data is not published or is unobtainable at the time of the ex-ante evaluation, a baseline study should be undertaken even on a small scale as a countermeasure or the project team should establish indicators when the project begins and the recipient country agrees by revising indicators in the PDM. Such measures have already been taken. JICA's on-going "Project for Eradication of Opium Poppy Cultivation and Rural Development in Northern part of Shan State (2014-2019)" conducted a baseline study targeting farmers when the project started.

Attachment: Achievement by Outcomes

Outcome	Indicator	Achievement Level	Main Fact
Outcome 1: Urgent critical situation is mitigated in Kokang Special Region No. 1	Agriculture production (food crops) of the beneficiaries increases by 10% through agriculture emergency aid	Mostly Achieved	A change in agriculture production could not be measured since the baseline data had not been recorded during the project planning stage. According to interviews with pilot tract leaders and farmers, emergency aid largely contributed to an increase of agricultural production, especially food crop production during critical times.
	Massive prevalence of malaria is prevented	Achieved	Massive prevalence of malaria has not been reported since 2004. The number of deaths related malaria was only one person at the time of project completion.
	Transportation between Laukai and Konkyan functions even during the rainy season	Achieved	Traveling time was reduced by half and fuel consumption was reduced as well. Transportation time of people and goods became much easier even during the rainy season.
Outcome 2: Techniques and approaches regarding the whole process from cultivation to marketing of substitute crops were improved mainly in the Pilot Areas	Good examples of an improved farming system with support from the project are seen.	Achieved	Excellent seed varieties distributed in the Project were cultivated at pilot village tracts and good examples were seen by project stakeholders.
	Yield of targeted substitute crops increases by 10 %	Mostly Achieved	While yield amount of rice, maize, and tea increased, 10% of the targeted amount could not be verified since baseline data had not been recorded.
	Sale amount of the cash crops (e.g. buckwheat, tea, etc.) that the Project supports increases	Mostly Achieved	Sales amount of tea had increased. Buckwheat production had stopped when the buckwheat Shochu production factory, a main market for Kokang buckwheat in Mandalay stopped in 2007 due to high transport costs and decreased sales. As a result, buckwheat cultivation stopped. There is information that Shochu production has restarted recently.
	Capacity of counterparts are strengthened	Achieved	Communication skills, computer/IT skill, project cycle management skill (PCM) improved through participating in extension activities. KSAZ staff members especially have a better understanding about the actual situation of Kokang farmers by participating in project activities.

	Posters, pamphlets and manuals for training and extension are produced	Achieved	Poster, pamphlet, and manual which show the cultivation process and sales of substitute crops for famers were produced. These were used in training courses for famers.
Outcome 3: Improved farming techniques are disseminated and used by farmers mainly in the Pilot Areas	More than 50 farmers receive agriculture training (centre and/or mobile) every year.	Achieved	Training participants were 2,200 farmers in 2011 (733 persons annually) which largely exceeded the targeted number.
	More than half of the agriculture trainees apply the techniques taught in the trainings	Mostly Achieved	The number of farmhouses is unknown. According to DOA data, the number of farmhouses that applied Bokashi had increased from 3 at the time of project completion to 4 at the time of the ex-post evaluation. Over 100 farmers also applied Bokashi after participating in training courses. There are many more famers who learned the Bokashi skills and applied it temporarily but they did not continue it.
	Capacity of counterparts are strengthened	Achieved	DOA counterparts can undertake agriculture training courses on their own to master some new skills. Communication skills related to farmers and training skills had improved.
	Posters, pamphlets and manuals for training and extension are produced	Achieved	Posters, pamphlets and manuals for famers which show the process from cultivation to sales of substitute crops were produced. These were used in training farmers.
Outcome 4: The village is improved (e.g. through group activities) mainly in the Pilot Areas	More than 2 activity groups were organized in all the pilot areas	Achieved	Many activity groups such as literacy groups, water supply management group, and revolving system group were created by the time the project was completed.
	More than one income generating activity in each pilot area was initiated and sustained by villagers.	Achieved	29 activity groups were organized that undertook income generating activities such as animal dispersal through a revolving system (pig, buffalo, cow, and goat). 686 households in 25 villages benefited from these activities.
	More than half of the people in the pilot areas realized that their living standard had improved (e.g. drinking water, etc.)	Mostly Achieved	The exact number is not confirmed. However, evaluation team visited 4 village tracts out of 6 pilot village tracts where water supply facilities were built by the project. Interviews with counterparts, village tract leaders, and villagers confirmed that the water supply facilities reduced the workload of the villagers to carry water and saved hours for villagers to do other tasks.

	Capacity of counterparts are strengthened	Achieved	Communication skills with farmers had improved. Techniques for vaccination for swine fever improved.
	Posters, pamphlets and manuals for training and extension are produced	Achieved	7 textbooks and manuals such as a manual on disease and its prevention in domestic animals, manuals for plastering, and leaflet for advertising Kokang handicrafts were produced in the project.
Outcome 5: Basic health situation and education environment were improved mainly in the Pilot Areas	All school children in the pilot areas receive health education and access to safe water and toilets in schools	Mostly Achieved	Latrines and water supply facilities were built and health education was provided in all the schools newly constructed in the pilot village tracts including one not supported by the Japanese government.
	Out of school children receive literacy education in the pilot areas.	Achieved	There were 3,500 out of school children in 2005 but 1,000 of them were able to receive literacy education through the project in 2006.
	Capacity of counterparts are strengthened	Achieved	CP from MOH learned about EPI (Extended Program on Immunization) procedure and implementation method through the project. CP from MOE learned about promotion and coordination of literacy program.
	Awareness and access to safe water and sanitation were clearly raised among the villagers in the pilot areas.	Achieved	50 teachers had participated "School health workshop". Children's hygiene action had improved; children's parasitic disease and malaria infection had decreased through teachers' guidance. Regional Health Service Centers (RHSC) including water supply facility, latrines, and a delivery room were constructed in Lontan and Taushwe.
	Posters, pamphlets and manuals for training and extension are produced	Achieved	10 different educational materials and textbooks such as a video compact disc for teaching malaria prevention and bed net usage, malaria prevention posters, Sugoroku (hygiene game), teaching materials for school health, health cards, and Burmese communication booklet were produced during the project period.