

Ex-Post Evaluation Report

The Telephone Outside Plant Construction Center Project in Indonesia

September 2002

**Japan International Cooperation Agency
Planning and Evaluation Department**

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The opinions expressed in this report are those of the authors and do not necessarily represent the views of the Japan International Cooperation Agency (JICA).

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Preface

In regard to the ODA evaluation, it has been pointed out that the establishment of a consistent evaluation system from the preliminary stage to ex-post is important. Therefore, JICA has been implementing full-fledged ex-ante evaluations for each project-type technical cooperation project¹⁾, grant aid project and development study since fiscal 2001 after going through an experimental introduction in fiscal 2000. On the other hand, terminal evaluation has been implemented for each project—mainly project-type technical cooperation projects—in the past. However, the effects arising at a certain period after the end of the cooperation (impacts) and sustainability at that time have not necessarily been verified or analyzed. In order to implement projects more efficiently and effectively, it is important to conduct ex-post evaluation for each project and to also give feedback of the evaluation results to the recipient countries.

Against this background, it was determined that the “ex-post evaluation for individual projects” would be implemented for project-type technical cooperation projects and grant aid projects from fiscal 2002. In preparation for full-fledged implementation, the evaluation was experimentally implemented for Indonesia and China in fiscal 2001. The knowledge acquired through the evaluation was organized to prepare the “Manual for Implementing Ex-post Evaluation for Individual Projects (Compendium of Case Studies).” This report is a compilation of the results of ex-post evaluations for projects that were subject to experimental implementation²⁾.

In the past, the monitoring survey (post-project monitoring) had been carried out for project-type technical cooperation projects, grant aid projects and the independent provision of equipment (already abolished as a cooperation form) at a certain period after the end of cooperation (after two years and six years). Materials acquired through post-project monitoring have been utilized to consider the implementation of follow-up cooperation. The new “ex-post evaluation for individual projects” is a progressive reorganization of the “post-project monitoring.” In the survey, post-project conditions are surveyed and an evaluation is made, as mentioned above, through the more comprehensive survey and analysis of the effects of cooperation and sustainability by the recipient countries.

September 2002

Hiroshi Fukada

Managing Director of the Planning and Evaluation Department

¹⁾ The name was changed to “technical cooperation project” in fiscal 2002.

²⁾ Three ex-post evaluations (two for project-type technical cooperation and one for grant aid cooperation) were implemented in Indonesia and China respectively, and separate reports were made.



Outside Plant Construction Center



GIS-CAD LABORATORY



an office



Local in-country training [Telecommunication Outside Plant Construction Technology]



an editing room

1. The Outline of the Ex-post Evaluation Study

1-1 Background and the Purpose of the Study

The sixth national five-year development plan—launched in fiscal 1994—calls for one million lines to be constructed annually, for a total of five million. New switchboards and telephone lines were set up for this expansion, but the telephone line fault ratio (number of faults per one million units in a month) was very high in 1992 at 4.1 (compared to Japan's fault ratio of 0.2). This high fault ratio can be attributed to insufficient ability to construct telephone lines. Due to insufficient maintenance of the design, construction methods and materials used in telephone line construction and inadequate construction supervisory skills, construction work is not appropriately supervised. Because of these circumstances, the Indonesian government requested that Japan provide the technical cooperation necessary for setting up PT. Telekomunikai (hereinafter TELKOM)'s standardized construction criteria, standardizing line construction and training construction work supervisors in order to improve the management of telephone line construction work.

In response to the above request, JICA dispatched a Preliminary Survey Team in February 1994 in order to verify the content of the request and to review the implementation plan. Based on the result of the preliminary survey, long-term study team was dispatched in July 1994 to examine the implementation plan in detail. In October 1994, in accordance with the results of the surveys to date, the Implementation Survey Team was sent in order to confirm the implementation plan for the project-type technical cooperation, and signed the Record of Discussions (hereinafter referred to as the R / D). Based upon the R / D, the project was implemented from November 20, 1994 to November 19, 1998.

The ex-post evaluation study, which is to start in a full scale from FY 2002, has been conducted in Indonesia and China in trial basis. The objectives of this study are to verify mainly the sustainability and impact of some projects after certain periods have past since the completion of JICA cooperation. Through the activities above, this study seek to obtain lessons in order to utilize them to feed back for the formulation of similar projects in the future. The projects were selected base on the following criteria:

- Project-type technical cooperation and grant aid
- Project after 3 to 6 years have past
- Project which was not covered by the ex-post evaluation by Ministry of foreign affairs or JICA in three years

1-2 Evaluation Team and the Study Period

Name	TOR
Mr. Yuji Otake (JICA Indonesia Office)	Supervision of the local consultant
Mr. Kazuhiro Yoshida (Office of Evaluation and Post-project Monitoring, Planning and Evaluation Department, JICA Head Office)	Evaluation Planning (Feb.17 -23)
Mr. Kaneyasu Ida (IC Net Limited)	Ex-Post Evaluation (Feb.17-Mar.2)
Mr. Lutfi Bakhtiyar (Japan Central Studies)	Data collection (Feb.17-Mar.19)

Field study:February 17 – March 2, 2002

SCHEDULE: Ex-post Evaluation Study for Individual Projects in Indonesia

Date & Time	Activities		Accommodation	
Feb.17 (Sun)	10:50 Arrival at Jakarta (16:25, JL725)		Jakarta	
Feb. 18 (Mon)	8:30 Meeting with JICA Office 9:00 Internal Meeting with local consultant 14:00 Courtesy call and meeting with Director General of Post & Telecommunications, Min. of Communication Internal Meeting		Jakarta	
Feb. 19 (Tue)	9:00 Meeting with Head of TV Training Center (TVTC) 12:00 Courtesy call and meeting with Sekretaris Perusahaan 12:30 Interview persons concerned of TVTC Internal Meeting		Jakarta	
Feb. 20 (Wed)	8:00 Move to Bogor by car 9:00 Meeting with Dean Faculty of Agricultural Engineering and Technology, Institut Pertanian Bogor (IPB) 10:00 Meeting with Director of Centre for Research on Engineering Applications in Tropical Agriculture (CREATA) 13:00 Interview persons concerned of IPB 15:30 Move to Bundung		Bandung	
Feb. 21 (Thu)	9:00 Meeting with Head of Training Division, PT Telekomunikasi Indonesia 10:30 Interview with persons concerned of the Telephone Outside Plant Construction Center Project 11:30 Visit the Center Move to Jakarta by car		Jakarta	
Feb. 22 (Fri)	Arrange materials		Jakarta	
Feb. 23 (Sat)	Mr. Ida	Mr. Yoshida	Mr.Ida	Mr. Yoshida
	Internal Meeting Discussion with local consultants to clarify the framework of the following supplementary survey	Internal Meeting Moves to Jakarta by car Leave Jakarta (14:55, CI672)		(Hong Kong)
Feb. 24 (Sun)	Arrange materials and write necessary reports			
Feb. 25 (Mon) - Feb. 28 (Thu)	Conduct supplementary survey			
Mar. 1 (Fri)	Conduct supplementary survey Report to JICA Office Leave Jakarta (23:45, JL726)		(in airplane)	

2. Study Methods

2-1 Outline of the Project

PDM

Summary	Indicator	MoV	Assumption
Overall goals To improve the quality of the Telephone outside plant construction (TOPC)	The Telephone faults ratio is less than 10 per month – 100 subscribers	Telephone faults data of the Maintenance and Operation Dept. of P.T. Telekom	
Project purpose To establish the supervisor training course and to train personnel in charge of TOPC supervision	TELEKOM is able to produce more than 100 TOPC supervisors every year. (except those at local institutions)	Training record of the TELEKOM training center	Well trained supervisors will be able to manage contractors in TOPC. The established standards and guidelines will be updated.
Output 1. TELEKOM staff is to be trained in TOPC work, supervision and inspection methods according to the revised work methods in the fields of the cable engineering, civil engineering and subscriber premises engineering at the TELEKOM training center. 2. The TOPC problems are to be identified and counter-measures are to be found in the course of preparation and revision of the supervisor training course. 3. The revised TOPC standards and methods are to be disseminated to WITELs.	1.1 More than 150 TOPC supervisors are trained according to the revised work methods. 1.2 All counterparts become supervisor training instructors. 1.3 Facilities for practical training for supervisors are constructed. 2. The number of reports submitted to related departments from the project. 3.1 More than 32 trainees from the supervisor training course are TOPC instructions from regional training units. 3.2 Number of guide books and video texts are made.	1.1 Training record of the TELEKOM, Training center Development Dept., P.T. TELEKOM 1.2 Project activity record 1.3 Project activity record 2. Project activity record, Business log of each responsible Development Dpt.: Construction, designing, and supervising methods, R & D Dpt.: material specification, factory inspection manual 3. Project activity record	1.1 Instructors will not change jobs. 1.2 Some excellent trainees will become instructors. 1.3 TELEKOM will increase the number of TOPC supervisors every year by 100 people at least. 2. The standard manual for TOPC will be improved and updated properly according to the Project proposal. 3. TELEKOM will make regional TOPC instructors to be trained in supervision training course.

2-2 Stakeholders and Study Methods

Based on the joint evaluation report produced by the Indonesian and Japanese sides at the termination of the Project in 1998, the Team produced an evaluation plan and then prepared evaluation questions to respective stakeholders as shown below.

Stakeholders	Study method
<u>Responsible agency:</u> Directorate General of Posts and Telecommunications	Formal questionnaire & interviewing
<u>Implementing agency:</u> TELKOM TELKOM Training Division Outside Plant Construction Center (OPCC) OPCC Instructors (C/P 7 persons) TELKOM supervisors (50 persons)	Formal questionnaire & interviewing Formal questionnaire & interviewing Formal questionnaire & interviewing Questionnaire survey Questionnaire survey through telephone

The equipment monitoring was conducted in 2000; therefore, it was not included in this evaluation study.

3. Study Results

3-1 Sustainability

(1) Current Situation of Counterpart Personnel

Although there is some fluctuation in the number of OPCC instructors, 12 instructors moved after 1998. Among these, seven were counterpart personnel. It is necessary to increase personnel so that more training courses can be set up. Also, all instructors are over the age of 45, so the number of young instructors should be increased to respond to technological innovation in pertinent fields.

There has been little change in the supervisors—targets for training—since the Project ended.

Changes in Number of OPCC Instructors

	1998	1999	2000	2001	2002
Total	10	9	8	12	10
New instructors	1	4	4		
Transferred/resigned		1		1	1

(Source: OPCC)

Changes in Number of TELKOM Supervisors

	1998	1999	2000	2001
Supervisors	425	433	455	419

(Source: TELKOM)

(2) Organizational Aspects

TELKOM went through an organizational change while the Project was being implemented, and the Project had its jurisdiction changed from the Development Division (abolished) to OPCC. Consequently, the Project's key role became training, and construction standardization and regional dissemination of technology was moved out of their jurisdiction. Even after Project completion, OPCC has been maintained as a training institution.

(3) Financial Aspects

OPCC's budget from 1998 through 2001 came from revenue from TELKOM's merged business division through the KSO (Joint Operation Scheme) method and direct budget allocation from TELKOM. There has been little change in the amount allocated by each, and OPCC has been able to maintain an annual budget of between 112 and 128 million rupiah.

Changes in OPCC Budget (Unit: Rupiah)

Budget allocation	1998	1999	2000	2001
KSO-related	25,417,066	19,585,000	21,479,491	27,853,539
From TELKOM	86,800,241	105,149,345	100,094,253	101,069,666
Total	112,217,307	124,734,345	121,573,744	128,923,205

(Source: OPCC)

(4) Technical Aspects

Currently, the third-country group training "Telecommunication Outside Plant Construction Supervisory" (1998 – 2002) and the local in-country training "Telecommunication Outside Plant Construction Technology" (1999 – present) are being implemented, primarily by OPCC instructors and with assistance from JICA. These are intended to maintain the technology transferred in the Project. However, some instructors report that they cannot evaluate technical levels of new technology resulting from technology innovations in the context of developed countries' technology standards.

(5) Sustainability of Project Effects

The sustainability of the Project effects from completion to present is expressed below.

(↗ : very high; ➡ : maintained, sustained; ↘ : lower than at completion.)

1) Improvement and expansion of training activities

Sustainability: ➡

The Project implementation enabled the implementation of six newly created courses. The economic problems in 1998 restricted the number of courses and trainees, but after 1999 over 100 trainees were accepted every year.

Track Record in Accepting Trainees

	1999		2000		2001	
	No. of courses	No. of trainees	No. of courses	No. of trainees	No. of courses	No. of trainees
2-week course			2	22	1	14
4-week course	1	8				
Optic fiber splicing	5	56	9	113	6	48
Other courses	2	36	2	36	2	36
Total	8	100	13	171	9	98

(Source: OPCC)

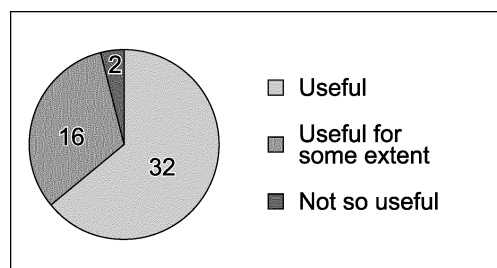
However, the caravan-type training, which targets regional areas and companies and received high praise after the Project was completed, is no longer implemented due to insufficient funds.

In this study, a questionnaire was administered to supervisors to study improvements in the training.¹⁾ The results are displayed below. A comparison with training before the Project was attempted, yet the respondents' memories were too vague and trainees' understanding too insufficient for an adequate sample. This resulted in fewer valid samples for analysis than planned. Therefore, data from before the Project is offered for reference only.

Evaluation of training content

The training content was rated highly by 32 out of 54 respondents (64%). The primary reason given for such high evaluations was that the training could be readily used in real situations. The instructors' teaching abilities were highly evaluated by 35 out of 50 respondents (68%), who cited the ease of their teaching methods and their technical abilities.

After Project Completion (1998 – 2002)

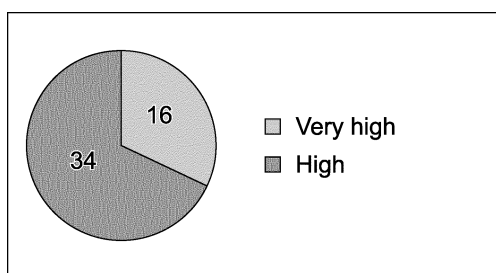


Before Project (1991 – 1994)

Very useful :	1
Useful to some extent :	3
Not useful :	0

¹⁾ In this case, one regional station from each of the five islands was selected and the questionnaire was sent beforehand by facsimile. Respondents were chosen randomly from the supervisor roster, and the study members gave the questionnaire over the telephone. Due to limits on time and investments, the number of trainees sampled between the 1999 and 2001 semesters was 50 out 369. (87% significant)

Evaluation of Instructor's Teaching Abilities

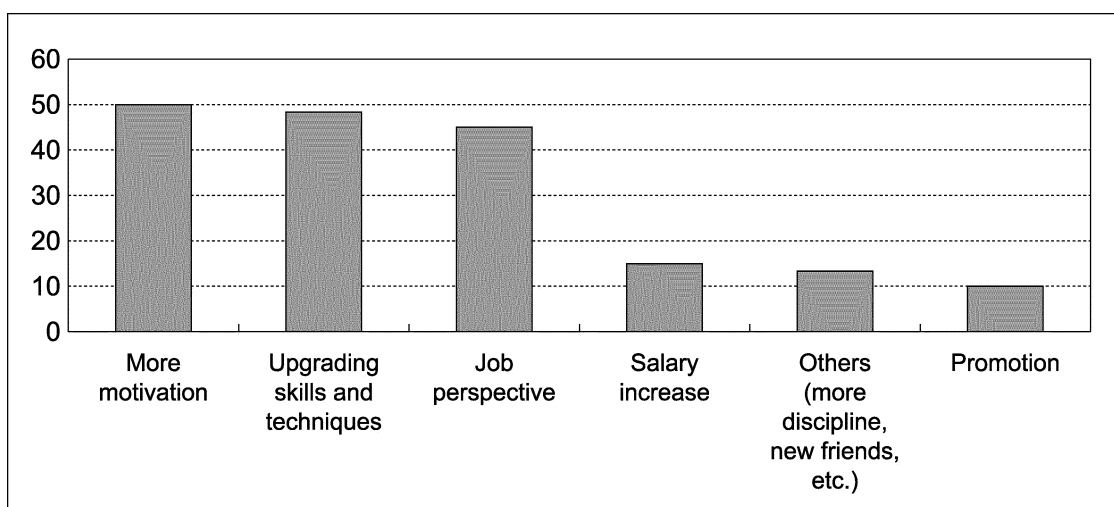


Very high :	1
High :	3

Effect of Training on Supervisors

Various effects other than improvement of technical abilities were acknowledged at the supervisor's individual level. (Multiple responses were possible). Almost all responded that their morale had risen and that their technical skills had improved. Also, another secondary merit was expanded job options thanks to the training.

Effects of the training courses on the supervisors



The Third-Country Group Training was implemented beginning in 1998, and local in-country training began in 1999 supported by JICA. Respective of the standard courses described above, 230 students were admitted for the 1998/1999 school year, 341 in 1999/2000 and 296 in 2000/2001.

One problem in improving the training course contents was that OPCC did not receive reports regarding problems or training needs from related departments. Stronger affiliations with other departments are essential to further improvement of training material.

The training facilities built in the Project are being appropriately maintained and utilized.

2) Educational material development

Sustainability: ➔

OPSP Supervisor Guidelines Vol. 1 – 5 were revised and the English safety manual was corrected. New materials prepared after Project completion include *Fiber Optic Splicing* and *MPC Cable Installation*.

3) Problems in construction work

Sustainability: not applicable

Reports were turned in to related departments due to the organizational changes during the duration of the Project, but this is no longer done. The related institutions do not intend to respond regarding the reports prepared during the Project.

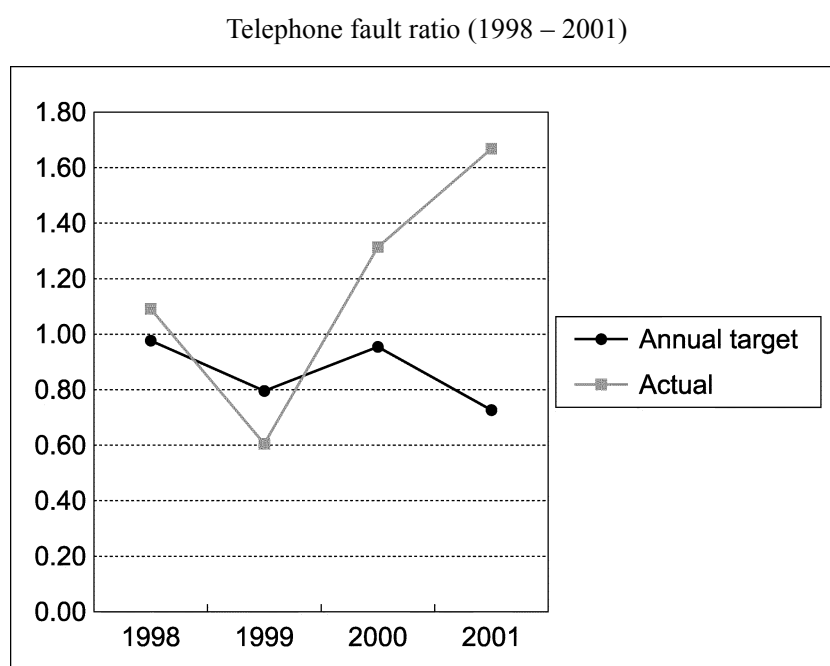
4) Assigning revised construction criteria to local offices

Sustainability: not applicable

Standardization concerning construction is outside OPCC's jurisdiction and is therefore not dealt with here.

3-2 Impact of the Project

The overall objective is the achievement of a telephone fault ratio of below 1,000 a month. Changes in the fault ratio are shown below.



(Source: TELKOM)

As was indicated in the report published at the Project's completion, there are many external factors and environmental conditions that contribute to reducing the telephone line fault ratio. Excluding the managing abilities of the supervisor, the following factors influence the fault ratio:

Internal factors: factors related to TELKOM's management supervisory abilities and line equipment (the supervisor's technical and management abilities, the maintenance of line equipment and whether equipment has been updated or not, standard specification of equipment and materials).

External factors: Construction abilities of construction firms, line operation by external contractors under KSO arrangements.

The fault ratio exceeded the goal's indicators in the 1998/1999 period. According to TELKOM, a significant reason for the reduction in the fault ratio lays in internal factors, in particular, higher abilities on the part of the supervisors. Indonesia's economic crisis was most strongly felt in 1998. Despite sharp reductions in TELKOM's budget and higher prices for equipment and materials, the supervisors learned to respond to faults (Q assessment) through the training activities, leading to a lower fault ratio. It was also crucial that spare parts could be obtained through the JICA project, compensating for an insufficient budget.

The fault ratio rose in the period from 2000 to 2001, but this was primarily due to external factors. The most significant reason was the collapse of agreements with the private companies providing further construction and maintenance of lines. As a result, TELKOM did not have cooperation agreements with other companies in six regions; lines could not be maintained and the fault ratio rose. Beginning in this period, the Internet began to be popular in urban areas, and supervisors were required to have technical skills for data telecommunications in addition to the conventional telephone technology. This raised new issues regarding responses to technology.

3-3 Analysis of Factors of Impact and Sustainability

Organizational aspects

- Instructors are currently not able to respond adequately to advances in telecommunications technology
- Insufficient spare parts
- Insufficient budget for running new courses

Individual level

- Large gaps between supervisor abilities, guidance is difficult

3-4 Conclusion

The Project goal of providing training to over 100 trainees annually is currently being maintained, and in the 1998/1999 period improvements in supervisor's abilities resulted in a reduction in the line fault ratio. However, OPCC instructors must improve their technical skills on a continuous basis in order to teach the supervisors how to deal with technological innovations.

As described above, negative external factors have a large effect on the OPCC's efforts in reductions in the line fault ratio, and there is still no standard specification for construction and equipment and materials.

4. Recommendations and Lessons

4-1 Recommendations

- Foster junior instructors in order to respond to technology innovations
- Revise supervisor's qualification requirements (securing quality supervisors)
- Convey any problems regarding construction and maintenance that related departments notice to OPCC and establish affiliations between departments so that countermeasures are reflected in training content

4-2 Lessons

Lessons relevant to the project formulation of similar projects in the future

Although TELKOM's internal factors and external factors interact to impinge on the impact of lower telephone line fault ratios, improved technology on the part of supervisors contributes a great deal. However, external factors are significant enough that during the project discussions should be held with responsible divisions and departments regarding measures to counteract other factors and external factors should be adequately monitored.