

Terminal Evaluation

Asia

1. Outline of the Project

Country:

Kingdom of Cambodia

Project title:

Secondary School Teacher Training Project in Science and Mathematics

Issue/Sector:

Education

Cooperation scheme:

Technical Cooperation Project

Division in charge:

First Technical Cooperation Division,
Social Development Cooperation Department

Total cost:

Approximately 500 Million Yen

**Period of
Cooperation**

1 August 2000 - 31 July
2003

Partner Country's Implementing Organization:

Faculty of Pedagogy(FOP), Ministry of Education, Youth and Sport

Supporting Organization in Japan:

Ministry of Education, Culture, Sports, Science and Technology (MEXT),
Nagoya University, Aichi University of Education, Gifu University, Mie University,
Nara University of Education, Tokai Women's Junior College

Related Cooperation:

In-Country Training, Dispatch of Experts (teaching advisor, etc.)

1-1 Background of the Project

Medium-term outlook in the National Program to Rehabilitate and Develop Cambodia (NPRD) announced in 1994 its aim to increase the GDP twofold in the first 10 years, and to improve social services such as health care and education. The "Improvement Plan for Basic Education"(1995 - 2000) set a goal, "the improvement of the quality of education." Under these circumstances, the government of Cambodia requested to the government of Japan for a project-type technical cooperation (now changed to Technical Cooperation Project) with the aims at fostering science and mathematics teachers and enhancing training programs for them.

1-2 Project Overview

The project helps to improve the training curriculum for trainer's training and transfer techniques on human development, including the development of textbooks in order to foster science and mathematics teachers and to enhance their training programs in Cambodia.

(1) Overall Goal

Capacities of science and mathematics teachers are enhanced.

(2) Project Purpose

- 1) To prepare a medium-term and/or long-term plan for improving secondary school teacher training in science and mathematics.
- 2) To enhance the capacity of the Faculty of Pedagogy (FOP) in science and mathematics education.

(3) Outputs

- 1) The quality of existing pre-service teacher training program is improved.
- 2) Trainers are prepared for the introduction of new ideas.
- 3) Activities for promoting science and mathematics education are conducted.
- 4) A future plan for secondary science and mathematics teacher training is prepared.

(4) Inputs

Japanese side:

Long-term Experts	6	Equipment	Approx.47 million yen
Short-term Experts	19	Others (management fee)	Approx.122 million yen
Trainees received	12		

Cambodian Side:

Counterparts 12

Land and Facilities

Local Cost

2. Evaluation Team

Members of Evaluation Team Team Leader/General: Eiji INUI, Director, First Technical Cooperation Division, Social Development Cooperation Department, JICA
Science Cooperation: Fumio KAWAIZUMI, Assistant Professor, Graduate School, Nagoya University
Mathematics Cooperation: Masashi SUZUKI, Assistant Professor, Aichi University of Education
Evaluation Planning: Hiroyuki YAKUSHI, First Technical Cooperation Division, Social Development Cooperation Department, JICA
Project Evaluations: Michiko EBATO, Nippon Koei Co., Ltd.

Period of Evaluation 2 March 2003 - 8 March 2003
(Consultant members: 19 - 24 January, 2 - 7 March)

Type of Evaluation: Terminal Evaluation

3. Results of Evaluation

3-1 Summary of Evaluation Results

(1) Relevance

The national development plans such as the "National Program Rehabilitate and Development Cambodia (NPRD)" in 1994 and the "Socio-Economic Development Plan" in 2001 announced the necessity of human resource development, which was the foundation for Cambodia's socio-economic development. Therefore, the project is in line with the needs in the education sector. Japan has the only aid agency to support the science and mathematics education in the upper secondary education, while the majority of other aid agencies focus on the development of basic education. Japan has enough knowledge and experiences to support the science and mathematics education sector. In the future, the ratio of enrollment to upper secondary and secondary education is expected to increase, and thus more teachers will be required. Judging from such factors, the project has high relevancy.

(2) Effectiveness

Among the project purposes, "to prepare a medium-term and/or long-term plan for improving secondary school teacher training in science and mathematics" will be mostly accomplished. At the final evaluation, relevant officials continued discussions on the positioning of medium-term and long-term plan and its contents. It is expected that a realistic proposal for a medium-term and long-term plan for fostering and training science and mathematics teachers will be submitted. The other project purpose, "to enhance the capacity of Faculty of Pedagogy (FOP) in science and mathematics education" is less likely to be achieved

sufficiently by the end of the scheduled period. This is due to the low level of achievement of the outputs 1) and 2), due to the fact that the basic capabilities of teachers were lower than expected. However, as for output 3), activities for promoting science and mathematics education, it will be accomplished for the most part, through training of local teachers and issuing newsletters.

(3) Efficiency

Inputs of long-term and short-term experts were mostly appropriate. However, the completion was delayed for the construction of the Science and Mathematics Education Center, which lowered the efficiency as a whole. Training of the counterparts was effective in terms of its contents, number of dispatched personnel, and timing. Their experience in the training was later utilized in their classes, and in developing their own experimental equipment.

(4) Impact

Some positive impacts were made toward the accomplishment of the overall goal in various forms, such as the implementation of workshops for teachers and improved capabilities of the graduates of FOP. Active involvement of the government in science and mathematics education was also observed. For example, the Ministry of Education, Youth and Sport has issued a guideline to all the upper secondary schools to introduce six hours of experiment in a year for science classes in upper secondary education. The Ministry also assured a budget for workshops on science and mathematics for local teachers. This is perhaps because the project activities were highly evaluated, and the Ministry recognized that the science and mathematics education in secondary education as more important. On the other hand, it was observed as a negative impact, that the FOP may become more dependent on the project financially.

(5) Sustainability

It may take more time to assure sustainability. As the organizational and financial sustainability of FOP is not clear, it was unclear whether the equipment provided by the project would continue to be utilized and maintained, and whether FOP would be able to continue the project activities. Instructors had already received training on the maintenance of experimental equipment at the Science and Mathematics Education Center. Thus, the equipment will be maintained at least while these trainees remain at FOP. Therefore, sustainability in terms of these issues will be assured. However, the instructors did not reach the level that would allow them to improve their teaching capabilities on their own in the future and therefore, continual support would be required.

3-2 Factors that Promoted the Realization of Effects

(1) Factors Concerning the Planning

- 1) Adaptabilities and flexibility of long-term experts toward actual situations.
- 2) Effective input of short-term experts with high expertise.
- 3) Introduction of ways to encourage learners to take initiative.
- 4) Input of experimental equipment and methods of utilizing the materials procurable on site.
- 5) Dissemination of information by translating foreign documents into Cambodian.

(2) Factors concerning the Implementation Process

- 1) Improvement of organizational capacity through smooth communication between experts and FOP instructors.
- 2) Smooth and effective information exchange with the supporting committee in Japan.

3-3 Factors that Impeded the Realization of Effects

(1) Factors Concerning the Planning

- 1) Lack of agreement among concerned personnel on why and for whom the medium-term and long-term plans were developed.
- 2) It was described that long-term and short-term experts were dispatched as necessary in both of the original Project Design Matrix (PDMo) and the revised PDM (PDM1). However, in the record of discussion (R/D), which took place before implementing the project, the experts were described simply as "experts on science/mathematics," and their specific subjects were not specified. This, which resulted in the input of experts on physics and biology to be delayed.

(2) Factors concerning the Implementation Process

- 1) An earlier completion of the Science and Mathematics Education Center was necessary in order to enhance the efficiency within the three-year project period.
- 2) The standard monthly wages for FOP instructors were low and they had to supplement their income by having a side job. However, the counterparts of the project could not continue their side jobs as the project activities kept them busy, and the

counterparts were caught in a dilemma. The project paid necessary management fees, but difference of opinions remained among the counterparts and experts. For example, the counterparts claimed that the amount paid was not sufficient compared to other donors. However, at the time of this survey, the counterparts recognized the importance of the activities and a trusting relationship was built between the experts and counterparts

3-4 Conclusion

As for one of the project purposes, ("to enhance the capacity of Faculty of Pedagogy (FOP) in science and mathematics education") great improvement was observed since the commencement of the project. However, outputs 1) and 2) related to the above project purpose were not accomplished sufficiently. The degree of improvement of the FOP instructors' basic knowledge and teaching skills was limited, and the amount they accomplished since the beginning of the project was less than expected. This adversely affected the accomplishment of the project purpose, as well as the sustainability in the utilization of the Science and Mathematics Education Center. Judging from the above evaluation results, continuous support will be necessary to further improve the effectiveness, efficiency and sustainability of the project.

3-5 Recommendations

(1) The level of achievement of output 1 (The quality of existing pre-service teacher training program is improved) and output 2 (Trainers are prepared for the introduction of new ideas) are low. Therefore, one of the project purposes, "Capacity of FOP in science and mathematics education is enhanced," will not be accomplished within the originally set three-year project period. Meanwhile, the improvement of science and mathematics education accompanying experimental practices utilizing the Science and Mathematics Education Center has brought various outcomes. By continuing the project activities for two more school years, the project is expected to bring steady outcomes. Judging from the above, the project should be extended by one year and three months.

(2) If the project is to be extended for one year and three months, the detailed plan of operation for the extension period shall be discussed between Cambodian side and Japanese side, and completed by the end of March 2003.

(3) It is necessary to set up a committee to utilize and manage the Science and Mathematics Education Center. It is also important to consider how to assure the necessary budget for the operation and management of the Center, annual utilization plan of its facilities, and maintenance and management of them after the termination of the project.

(4) It is necessary to hold thorough discussions when assigning and allocating counterparts, to achieve a more effective and efficient technical cooperation project. In conducting workshops or education for teachers, sufficient consideration should be made so that techniques are transferred not only to the counterparts but also to all the instructors of related subjects.

(5) The medium-term and long-term plan should be discussed by both the Japanese and the Cambodian sides, and a draft should be completed by July 2003. If the project period is to be extended, both the Cambodian and the Japanese side shall study the feasibility of the plan.

3-6 Lessons Learned

(1) It is necessary to carefully consider the cooperation period for a project in the education sector, especially if it is the first cooperation in a recipient country, because, in many cases, it takes time till the project effects are realized.

(2) It is very important to set up concrete indicators at the initial stage of the project. The effectiveness of the indicators shall also be assessed as early as possible.

3-7 Follow-up Situation

Based on the above recommendations, the project will extend its cooperation period to 31 October 2004.