

## Executive Summary

I . Outline of the Project	
Country : Cambodia	Project title : Science Teacher Education Project (Phase2) (STEPSAM2)
Issue/Sector : Basic Education	Cooperation scheme : Technical Cooperation Project
Division in charge : JICA Cambodia Office	Total cost : 420 million Japanese yen (as of JFY 2011)
Period of Cooperation	2008.9-2012.8 (4 years)
	Partner Country's Implementing Organization : Ministry of Education Youth and Sports (MoEYS) Supporting Organization in Japan : JICA
Related Cooperation	<ul style="list-style-type: none"> <li>• Expert (Education Planning Advisor)</li> <li>• Volunteers</li> <li>• Grass Roots Grant Aid (Construction of Laboratory), Japan Partnership Program, (Improvement of Teaching Competency by Lesson Study in Takeo Province (Hiroshima ) )</li> <li>• Training Program for Young Leaders (Science and Mathematics in Basic Education)</li> </ul>
<p>1. Background of the Project</p> <p>Three decades of the war and civil conflict including genocide during the Pol Pot regime from 1975-1979 killed a lot of intellectuals including teachers and destroyed the entire education system in Cambodia. Although the education system has recovered to some extent during the rehabilitation period, lack of qualified teachers are still serious problem in Cambodia. Among all the subjects, low quality of science and mathematics are heavy drag on industrial advances.</p> <p>JICA started its first project, "Secondary School Teacher Training Project in Science and Mathematics (STEPSAM)" in education sector in 2000, aiming at improvement of function and trainers of National Institute of Education (NIE). Following that, "The project for Improving Science and Mathematics Education at Upper Secondary Level (ISMEC)" was also implemented from 2005-2008, focusing on development of curriculums and text books of Science and Mathematics. In 2007, JICA conducted the survey for designing the cooperation strategy in education sector in Cambodia and as a result of the survey, JICA came to the conclusion that main target should be shifted from upper secondary level to primary and lower secondary level in order to raise the basic level of education as a whole. At around the same time, MoEYS submitted the official request for technical cooperation to government of Japan, focusing on improvement of science education in primary and lower secondary level.</p> <p>Thus "Science Teacher Education Project (Phase2) (STEPSAM2)" was started in 2008 as a 4-year project, aiming at improvement of quality of science teacher training in 18 Provincial Training Centers and 6 Regional Training Centers in Cambodia as well as development of INSET implementation plan on science in target areas.</p> <p>2. Project Overview</p> <p>(1) Super Goal</p> <p>The quality of primary and lower secondary education in target areas is enhanced (contributing to the fulfillment of objectives of MDGs).</p>	

(2) Overall Goal

The quality of teaching capacity of science teachers is enhanced in target areas.

(3) Project Purpose

The quality of Teacher Training (PRESET and INSET) on science is improved in target areas.

(4) Outputs

- 1) The capacity of MoEYS to plan and implement teacher training (PRESET & INSET) is enhanced.
- 2) The quality of trainers on science is improved in Regional Teacher Training Centre/Provincial Teacher Training Centre (R/PTTC).
- 3) An environment conducive to the continuous improvement of science lessons in R/PTTCs is established.
- 4) INSET Implementation Plan on Science is developed in target areas in line with National Policy.

(5) Inputs

Japanese side

Long-term Expert: 1 person                      Equipment: 2.343 million yen (as of June 2011)

Short-term Expert: 17 persons (17 position)                      Local cost: 32.902 million yen (-do-)

Trainees received: 5 persons

Cambodian side

Counterpart: 1 Project director, 2 Project managers and 17 National Trainers

Provision of land and facilities: office space

II. Evaluation Team

Members of Evaluation Team	Leader: Mr. Yasujiro SUZUKI, Chief Representative, JICA Cambodia Sub leader/ Education: Mr. Norihiro NISHIKATA, Senior Education Advisor, JICA HDQ Educational Planning: Ms. Miyako KOBAYASHI, Assistant Director, Human Development Department, JICA HDQ Cooperation Planning (1): Ms. Shoko KANAZAWA, Representative, JICA Cambodia Cooperation Planning (2): Ms. Pich Thyda, Program Officer, JICA Cambodia Evaluation and Analysis: Ms. Kaori TANAKA, KRI International Corp.
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Period of Evaluation	Feb 26, 2012-Mar 15, 2012	Type of Evaluation : Terminal Evaluation
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III. Results of Evaluation

1. Project Performance

(1) Inputs and Outputs

Output 1

The Evaluation Team confirmed that the indicators in (Project Design Matrix) PDM for the Output 1 were achieved.

The training programs for Teacher Training Centre (TTC) have been revised a few times based on the lessons learnt in the previous activities. National Trainers (NT) from Teacher Training Department (TTD) of MoYES have been taking a lead in the development of training program for TTC.

Through the supporting of development of Teacher Development Master Plan 2010-2014, which was approved by MoEYS in August 2010, the capacity of MoYES for planning and implementing the teacher training was improved. Sub-TWG has been conducted 18 times as of February 2012.

Besides the Project's activities, TTD conducted workshop on Lesson Study (LS) for upper secondary

schools by using MoEYS budget that is an examples of the improvement of planning and implementation capacity of TTD.

#### Output 2

Though some indicators in PDM have not been achieved, the Team concluded that the achievement level of the Output 2 is almost achieved.

The reason of this conclusion is that the Team found some design problem of baseline survey. The examination for the TTC trainers was conducted for voluntary base examinee and the sample size was relatively small. On the other hand, the samples of the survey in April 2011 were all participants of workshop conducted by the Project. The sample size was larger than the baseline survey. Considering these fact, the Team conclude the results of the baseline may not reflect the characteristics of TTC trainers in general in baseline survey. Though the class observation, interview and questionnaire survey, the team concluded the quality of the TTC trainers are improved.

Comparing the quality of LS by the score of the baseline survey and the survey conducted in December 2011, the quality of LS has been improved.

In terms of the quality of trainers, the most of R/PTTC directors/trainers in 5 provinces (Takeo, Kandal, Battambang, Kampong Chhnang and Siem Reap) evaluated themselves improving in all five fields such as 1) attitude/motivation, 2) LS, 3) experiment design, 4) pedagogy, and 5) subject knowledge of trainers.

There are still some issues to be concerned. According to the interview from the member of the Project and NTs, the gaps between PTTC and RTTC and in PTTCs and in RTTCs are observed. They also commented that basic science knowledge of trainers may affect to the quality of training in TTCs.

#### Output3

The achievement of the Output 3 was measured by four indicators in PDM and the Team confirmed that all indicators have been achieved.

The final version of LS handbook “Introduction to Lesson Study” and Inquiry Based Learning (IBL) handbook “Introduction to Inquiry-based Science Lessons” were developed May 2011 and distributed to training participants from R/PTTCs, principals and science teachers in pilot INSET schools and the inspectors for the lower secondary in Provincial Office of Education (POE). Since the distribution was limited to the participants for the seminar conducted by the Project and some extra copies for common use for each TTC, there are many requests of additional distribution for all science trainers in TTCs, trainees and science teachers in pilot schools, according to the interview and the questionnaire.

In terms of LS, TTCs in 5 provinces (Takeo, Kandal, Battambang, Kampong Chhnang and Siem Reap) responded that LS has been conducted almost as planned. It was also found that some PTTCs, especially small PTTCs, are facing difficulties to conduct LS continuously because of the number of science teacher is not enough to conduct LS effectively. The Project has suggested to those PTTCs to organize LS with other subjects but there are some limitations. According to the questionnaire, though some difficulties are informed 5 TTCs already expand their LS to other subjects.

Concerning IBL, many PTTC trainees requested in the questionnaire that IBL training for teachers in pilot schools where they conduct practice lessons.

The concept of LS and IBL has been incorporated in the revised TTC curriculum and it was adopted in all PTTCs in December 2010 and adopted in all RTTC in November 2011. The concept of IBL and LS were also included in Education Strategic Plan (ESP) 2009-2013 and Teacher Development Master Plan 2010-2014. The acceleration of implementation of IBL and LS can be expected.

#### Output 4

The team concluded that the achievement level of Output 4 is on the track to the achievement.

“INSET Implementation Plan on Science” is not completed yet and is expected to be developed in July

2012.

The INSET targets schools have been expanded from 6 to 36 and several trainings have been conducted since October, 2010. POEs were invited to the Management training with INSET school principals for conduct monitoring and support INSET schools. Close communication in POE, TTC and Pilot schools have taken under the Project initiative. However the system for concrete the relationship is not yet clear.

According to the interview with POE, there some implementation and understanding gaps are observed between the first 6 schools and 30 schools.

### (2) Project Purpose

The indicators of Project purpose in PDM are achieved. The improvement of the quality of science lessons of TTC trainers were confirmed by the score of their lessons comparing with the results of baseline survey. The scores for RTTC and PTTC are both better than the results of the baseline survey in 2008.

Though the scores are improved, INSET pilot school teachers as well as TTC teachers are still facing some technical difficulties. The major difficulties are 1) difficult to apply IBL in lessons without experiment 2) difficult to develop key questions and 3) difficult to manage time for preparation and during lessons.

### (3) Implementation Process

The Project activities were conducted as planned. In addition to the original plan, additional experts were dispatched in the field of “Development Partner Coordination and Teacher Development Master Plan”.

According to the results of interview with R/PTTC trainers, the approaches and method applied by the Project were appropriate. The IBL and LS handbooks were distributed to the INSET pilot school teachers, R/PTTC trainers and POEs and the contents of these handbooks are highly evaluated by them.

The trainings have been highly appreciated by the participants of the workshop in general according to the monitoring report and interview, but there are some comments on the frequency and schedule. During interview, some TTTC trainers mentioned the frequency of the training better if conduct every 4 month instead of every 6 month. Also some mentioned that the contents of the trainings were too intensive to understand everything at once.

The Project has been supported to conduct Sub-TWG on teacher training and it is functioned as the coordination platform for teacher training activities for Development Partners (DP) and MoEYS. From September 2011, Technical Group for Teacher Policy Development was also established and JICA is co-leader of the donor member for the Technical Group. The contribution from the Project is expected to support developing the policy though its experiences.

## 2. Summary of Evaluation Results

### (1) Relevance

The Team concluded the relevance of the Project is very high. The Project Purpose and Overall Goal remained relevant in terms of Cambodian national policies and Japan’s Development Assistance (ODA) policy to Cambodia and needs of the education sector.

ESP 2009-2013 puts capacity development of education staff at all level as the key component and “Development of Pre and In-service Teacher Training” is highlighted in one of five prioritized Programs. According to the interview with the Secretary of State of MoEYS, science is the key subject for Cambodia to accelerate development of the nation.

Japan’s Country Assistance Program for Cambodia 2002 explicitly states that assistance for developing and improving education is core policy assistance for Cambodia. JICA’s cooperation policy for Cambodia

2009 also focus on the improvement of the system and quality of teacher training especially in science and mathematics which is expected to contribute to the development of industrial human resources. Improvement of science and mathematics of education for high-level human resources development to lead innovation in science and technology is also stated in JICA Position Paper "JICA's Operation in Education Sector-Present and Future" in 2010. The Japan's Education Cooperation Policy 2011-2015 emphasizes the improvement of teacher training as an important component in one of the Focus Areas "Quality Education for All".

#### (2) Effectiveness

The Team concluded the effectiveness of the Project is high. The Project, already achieved target indicators set in PDM for both PRESET and INSET. Through the observation and interview, the team confirmed the quality of lessons by teachers in TTCs. The understanding of IBL by trainees of TTC is also improved compare to the Mid-term Review.

In terms of technical aspect, support/monitoring system after completion of project is not yet cleared. Some kinds of follow up needed to be considered to keep up the quality of their science lessons and domination of IBL concept and LS in the target areas. The lack of budget and materials for experiments were mentioned by directors, teachers and trainees. Sometime teachers and trainees have to pay for materials and copies for lesson study. The time constraint for preparation and conducting lesson is also raised by directors and trainers.

The gaps between RTTC and PTTC as well as among PTTC were found by interview and observation that needed to be reduced.

#### (3) Efficiency

The Team concluded the effectiveness of the Project is high. Overall output production is efficient and conducted as the plan. The Project experts are considered to work effectively with appropriate expertise and maintain good working relationship with counterparts. The flexible reaction of the Project, which is the additional dispatch of a short-term expert in the field of "Development Partner Coordination and Teacher Development Master Plan", also contributed to achieve the result.

NTs are capacitated to play key roles of planning, implementation and monitoring for training for R/PTTC as well as INSET activities. The cascade training system of the training can be said functioned with the capacity of NTs.

Under the JICA's Program for Basic Education on Science and Mathematics the Project closely collaborated with other JICA's schemes, such as Education Planning Advisor (Individual Expert) to MoEYS, dispatch of volunteers on science teaching to TTCs, trainings to Japan and so on is complementing the Project effectiveness. These are examples of effectively utilized other schemes of under the ODA program.

DPs coordination is also brought multiplier effects. The joint workshop with VVOB (one of Belgium official development aid organizations) effects on the improvement of quality science education in target areas.

#### (4) Impact

The Team concluded the impact of the Project is very high. The achievement to Super Goal can be anticipated based on the result of the test on scientific thinking skill prepared by the Project, if the activities initiated and implemented by the Project would continue at R/PTTCs and Pilot schools.

The concepts of the LS and IBL introduced by the Project were integrated into ESP 2009-2013 and Teacher Development Master Plan (2010-2014) which is the distinct contribution to the policy level. Also

these concepts were included to the new curriculum of TTC and applying into the PTTC in December 2010 and for RTTC in November 2011.

According to the interview with the Project members and directors of R/PTTC, some of TTCs have initiated expansion of LS to other subjects in their R/PTTCs and to their cooperative schools within their resources. TTD also has conducted LS workshop for upper secondary level by using own budget.

#### (5) Sustainability

The Team evaluated sustainability as relatively low. For establishment of integrated training system is needed for quality assurance and this was recommended at the Mid-term Review. The detail concept of National Centre for Teacher Development (NCTD) is expected to be introduced before the termination of STEPSAM 2. To produce continuous output after the completion of the Project, NT or similar technical personnel are required for TTC and pilot schools to sustain and assure the quality their activities.

ESP 2009-2013 continues to prioritize teacher training in order to improve the quality. Teacher Development Master Plan 2010-2014 is expected to accelerate the unified efforts for teacher training improvement with concerned DPs. IBL and LS were incorporated with the curriculum of TTC in coherent with Teacher Development Master Plan 2010-2014.

In terms of PRESET, whether the budget to provide continuous training for TTC trainers after the Project is not confirmed at this moment. Especially, the strong relationship with POE and PTTC has not been established. IBL and LS introduction training for INSET cooperative schools teachers have not yet conducted.

As for INSET, a plan of regular INSET system will be developed by 2013 according to Teacher Development Master Plan, and the detail steps for the development are expected to be established soon. The utilization of NTs and TTC trainers as resource persons also should be considered establishment of INSET training system as a whole.

### 3. Factors promoting better sustainability and impact

#### (1) Factors concerning to Planning

It is regarded to be appropriate to target all TTC (6 RTTC and 18 PTTC) as TTC is the key institution for teacher training.

Dispatch of a long term expert is also regarded as suitable measurement to precede the Project activities smoothly.

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

Under the JICA's Program for Basic Education on Science and Mathematics, the Project closely collaborated with other JICA's schemes that contributed to produce multiplier effects.

### 4. Factors inhibiting better sustainability and impact

#### (1) Factors concerning to Planning

N/A

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

N/A

### 5. Conclusion

The achievements of project outputs as well as the Project Purpose are measured by indicators in PDM

through conducting several workshop and training on IBL and LS for TTC trainers.

The high impact on policies in education in Cambodia is also confirmed with incorporation of IBL and LS into ESP, Teacher Development Master Plan and new curriculum for R/PTTC. TTC are influenced to the science education in Cambodia.

On the other hand, the gaps between RTTC and PTTC, in RTTCs and in PTTCs are also observed. For the movement of quality of teacher training in Cambodia, there are still financial and administrative challenges. In order to address them, the Team recommends the implementation of measures outlined in 5.

Recommendations.

## 6. Recommendation

### 6.1 Measures to be taken by the end of the Project

#### 6.1.1 Sharing of concrete concepts and plan for NCTD

MoEYS has designed a concept to establish the National Center for Teacher Development (NCTD), Regional Center for Teacher Development (RCTD) and Provincial Center for Teacher Development (PCTD) as a core institute for a regular INSET and PRESET in Cambodia. The NCTD would contribute in creating opportunities for Continuing Professional Development (CPD) for all teachers in Cambodia in the near future.

This concept will be shared with related government institutions and DPs at the Education Congress in late March, 2012 and will be integrated into the second-half ESP (2011-2013). The team suggested that MoEYS would share the concrete and precise plan (scope of work, timing, schedule, responsible organization in MOEYS, financial and human resources, etc.) with JICA.

#### 6.1.2 Filling in the gaps in PTTCs

As mentioned at the Five Evaluation Criteria, gaps in PTTCs was found and needed to be addressed. In particular, PTTCs have not established administrative relationships with the regional government as well as technical support system in terms of IBL and LS expansion.

To fill in the gaps in PTTCs, especially PTTCs without any intervention such as Volunteers, other DPs/NGOs, the Team suggests the following measures be taken:

- Seminar for knowledge sharing should be conducted between “model” PTTCs like Takeo and other PTTCs.

It would be an initial stage for developing network to share knowledge and experiences among PTTCs for sustainability after the Project.

- Seminars or workshops on IBL and LS for POE which are responsible for monitoring and supervising schools should be conducted, especially in provinces without RTTCs.

#### 6.1.3 Implementation of the test on scientific thinking skills

According to the recommendations of Mid-tem Review, STEPSAM2 conducted a test on scientific thinking skills in which the Project prepared to show the changes and impacts of learners as a baseline survey for pilot INSET in November, 2011.

Prior to the end of the Project in August 2012, it is requested that the Project would conduct the same test for Grade 8 as an end line survey in May 2012. Such evidence makes up crucial basis data for developing a regular INSET system.

### 6.2. Measures to be taken after the termination of the Project

#### 6.2.1 Utilization of National Trainers (NTs)

NTs having exceptional expertise in LS and IBL should be established in order to accumulate knowledge

and experience regarding how to improve lessons and give technical and practical advice. The knowledge and experience of NTs should be utilized continuously and effectively as valuable resources for sustainable PRESET. In addition, it is expected that NTs will be utilized as the key persons in order to establish the concrete mechanism for regular INSET system. The role of NTs is of great importance in establishing and developing NCTD, RTCD and PTCD which MoEYS has designed in Cambodia.

#### 6.2.2 Strengthening the INSET System

According to the Teacher Development Master Plan 2010-2014, an action plan on the regular in-service training system will be finalized by 2013 in the strategy 2.2 “Strengthening the in-service training system “. To contribute in developing an action plan for INSET, the Project focuses on not only PRESET but also INSET equally after the Mid-term Review.

While MoEYS already demonstrates political commitment in a Teacher Development Master Plan, in addition, it is requested that MoEYS would take necessary actions to implement a regular INSET system in the whole country as follows:

- 1) to assign technical staff and administration for INSET,
- 2) to clarify and integrate the department in MoEYS which is responsible for INSET,
- 3) to secure necessary financial resources.

#### 6.2.3 Strengthening the role of POE for a regular INSET

POE, which is responsible for monitoring and supervising schools, is a crucial role in developing a regular INSET system. However, the Team found some problems and constraints within the present POE, such as 1) insufficient number of inspectors, 2) shortage of necessary budget allocation for monitoring (transportation fee, etc.) and 3) lack of capacity and knowledge about LS and IBL.

To establish a regular INSET system in Cambodia, it is requested that POE should be involved as a key member of this system and take necessary action to solve the above issues, for instance, in providing basic training of LS and IBL for inspectors of POE.

#### 6.2.4 Collaboration with other Development Partners

The Team suggested that experience and know-how on teacher training based on the Project should be shared and feedback given to not only the MoEYS, but also DPs.

In particular, ADB’s Project Preparatory Technical Assistance Team for ESDPIII has already discussed with the Project and JICA Cambodia Office in regards to exchanging information for possible future coordination in the area of teacher training. Although in the preparation stage for the next phase in both technical cooperation by JICA and financial support by ADB at present, MoEYS is expected to coordinate these two DPs with initiative and leadership. This collaboration would be a good practice in complementarity both financial support and technical cooperation.

### 7. Lesson Learnt

#### 7.1 Impact at Policy level

LS and IBL concept was officially incorporated into policy documents such as ESP, Teacher Development Master Plan and the revised curriculum of R/PTTC under the strong commitment and leadership of MoEYS. By actively contributing in Sub-TWG on teacher training, the Project has come to be recognized as one of the leading actors in the field of teacher training by both MoEYS and related DPs, and positively involved into the process of policy making.



#### 7.2 Strengthening the synergistic and collaborative effect of JICA program

STEPSAM2 has been implemented under JICA's Program for "Basic Education on Science and Mathematics" with other schemes such as Volunteers, Education Planning Advisor, Training Program for Young Leaders, Grass Roots Technical Cooperation, Grass Roots Grant Aid (Construction of Laboratory), etc. For instance, Volunteers have dispatched to TTCs and POEs to follow-up the activities of STEPSAM2 and provide feedback to Project in the field level. Thus, the cooperation for basic education in Cambodia is a good practice in the synergistic and collaborative effect of JICA program.

#### 7.3 Showing the outcome in school level in teacher training project

The technical cooperation project on teacher training in general is expected to be designed to show the impact at the school level from the project formulation stage. The main objective of the teacher training in both PRESET and INSET is to improve the quality and efficiency of education services for students in school. The project should take necessary action to demonstrate the impact and change in the targeted school in the near future, although it takes a slightly longer period to see the change at school level.

#### 7.4 Sharing of knowledge and experience across countries

Exposure to other countries including Japan is quite useful for the Cambodian stakeholders in order to broaden their horizons, change their mind-set, and further develop their capacity. Establishment of a network on teacher development in Asia is desirable to share knowledge and experience and to enhance the motivation of counterparts in each country. In this way, Trilingual Cooperation and South-South Cooperation on teacher training project could contribute to capacity development in each country.

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