

Bangladesh

## Ex-Post Evaluation of Japanese Technical Cooperation Project

“Project for Strengthening Primary Teacher Training on Science and Mathematics”

External Evaluator: Yuko Aoki, Kokusai Kogyo

### 0. Summary

The Project had an objective of improving the teachers' teaching method of science and mathematics and the instructors for teacher training in Field Testing Schools (FTS) in Mymensingh province. The Project targeted the National Academy of Primary Education (NAPE) and related institutions of primary education in the province, and developed science and mathematics teaching materials, and promoted cooperation and collaboration among teachers and education related personnel. The Project was implemented under the sub-sector wide program<sup>1</sup>, PEDPII.

Quality improvement of primary education has been an important issue for the national development policy in Bangladesh. The needs to improve the teaching capacity of teachers to implement the comprehensible classes for pupils have also been high. The primary education support has been one of the focus fields of Japan's ODA plan for Bangladesh. Consequently, the relevance of the Project is high.

As for the Project Objective, the science and mathematics instruction has improved through the utilization of Teaching Packages, which are collections of good practices on science and mathematics teaching methodologies and which were introduced in target institutions. Consequently, the desired quality of teaching in science and mathematics was almost achieved at target institutions. As for the overall goal, not only the Project but also various activities of PEDP II such as increasing the number of teachers, distribution of teaching materials and equipping classrooms contributed to the trend of improving the scores in science and mathematics. The impact was observed, for example, distribution of Teaching Packages in the entire country by the fund of PEDPII, therefore improvement of teaching using the Teaching Packages of the Project was highly evaluated. As above, effectiveness and impact are judged as high.

As for efficiency, the cooperation period was extended for one and a half years because of delays in the approval of Teaching Packages, extending cooperation coordination supporting works due to the extension of PEDPII period and so on. This resulted in the cooperation amount much higher than planned due to the increase of the cost of dispatching experts, thus efficiency is evaluated to be low. Sustainability is high because there are no issues from institutional, technical and financial aspects of sustainability when conducting training with

---

<sup>1</sup> Sub-sector wide program is a measure to plan and implement a development program which ensures relevance between recipient country's policies and implementing support by "sector" such as education or other individual fields, by collaborating donor agencies/institutions and recipient country.

the Teaching Packages.

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

## 1. Project Description



(Project Locations)

(NAPE)

### 1.1 Background

The People's Republic of Bangladesh has been working actively toward achieving universal implementation of primary education since the signing of "Education for All (EFA)" declaration in 1990. From 1998 for 5 years, the Primary Education Development Programme I (PEDP I), which is a sub-sector wide program, was put into effect to implement the construction of primary schools and resource centers, the training of teachers and administrative officers, and the development of educational materials and the establishment of information management systems. As a result, it succeeded in raising the net enrollment ratio of primary education to 87.2%. However, the completion rate of primary schooling, which is compulsory, remained at 59.2%, and the problems of withdrawal from schooling and the quality of education were recognized as important challenges.

The Government of Bangladesh (GOB) started the Second Primary Education Development Program (PEDP II) from 2004 as the second phase of the PEDP I under the cooperation of eleven donor organizations. PEDP II aims to improve the quality of education, and includes four major components, namely 1) organizational reform, 2) improvement of educational quality in schools and in classrooms, 3) improvement of infrastructure and 4) improvement of access. Among them, regarding component 2) "improvement of educational quality in schools and in classrooms," the GoB requested technical assistance to the Government of Japan on the improvement of educational quality at the classroom level.

Aiming to improve the quality of training for science and mathematics teachers at primary

schools and that of education given in the classroom, with the National Academy for Primary Education (NAPE) serving as the major counterpart (C/P) organization, the project promotes cooperation and collaboration between teachers and others involved in education, and implements activities conducive to the improvement of educational quality through the development of science and mathematics teaching materials.

## 1.2 Project Outline

Overall Goal		Attainment in science and mathematics in primary education is improved in the target institutions.
Project Objective		The quality of teaching in science & mathematics is improved in the target institutions. The target institutions are: National Academy of Primary and Mass Education (NAPE), Primary Teacher Institute (PTI), Field Testing Schools (FTS) <sup>2</sup> , and selected Upazila Resource Centers (URC) and Upazila Education Offices (UEO).
Output(s)	Output 1	New teaching and learning methodologies are introduced through the development of Teaching Packages
	Output 2	The lessons of science and mathematics are improved in the target institutions through the use of Teaching Packages.
	Output 3	The capacity of NAPE for training and research in science & mathematics is enhanced.
	Output 4	The progress of activities is reported regularly in DPE and PEDP II.
Inputs		<p>Japanese Side:</p> <ol style="list-style-type: none"> <li>1. Experts 0 for Long-Term 、 19 for Short-Term ( Leader (1), Sub-leader(1), Training Planning (3), Mathematics (2), Science (5), Database development (2), Education evaluation/Curriculum (1) , Project coordinator (3))</li> <li>2. Trainees received (Twice, 11 for Japan)</li> <li>3. Trainees for Third-Country Training Programs in Philippines (9)</li> <li>4. Equipment 11,623,000 yen</li> </ol>

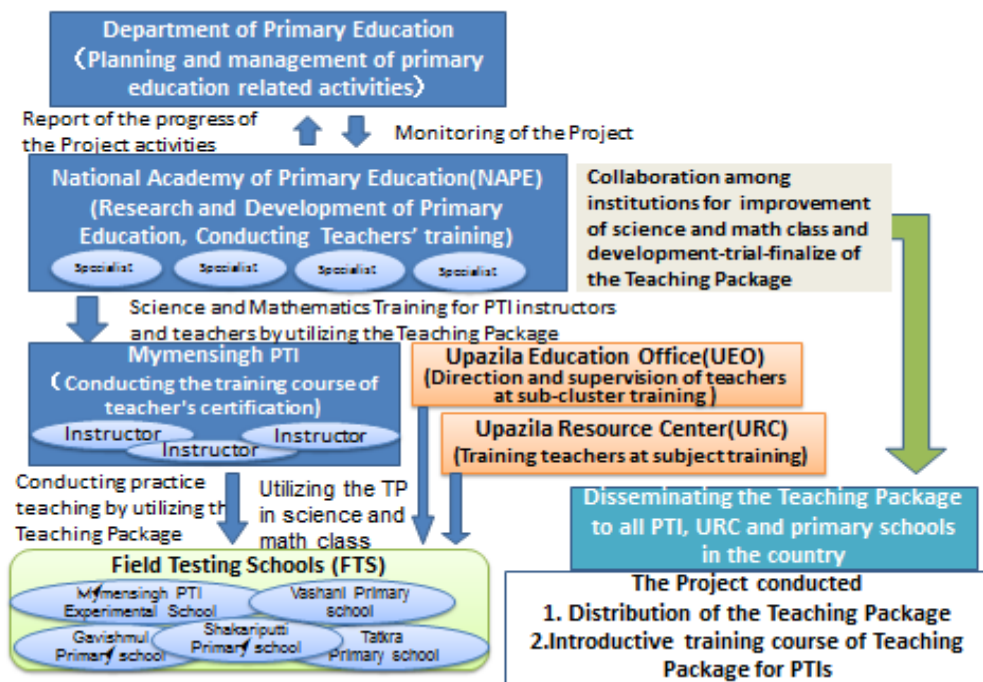
<sup>2</sup> FTSs are the target primary schools of the Project. There are a total of five schools in Mymensingh: Gavishmul, Shakariputti, Tatkra, Vashani and PTI Experimental School. PTI Experimental School is a primary school that belongs to PTI and PTI trainees conduct practice teaching there.

	5. Local Cost 9,610,000 yen 6. Others (incl. dispatch of related missions) Bangladesh Side: 1. Counterparts 2. Project Office (in Dhaka and Mymensingh), Utilities
Total cost	654 million yen
Period of Cooperation	October 2004 – September 2008 (Extended: until March 2010)
Implementing Agency	Ministry of Primary and Mass Education, NAPE
Cooperation Agency in Japan	PADECO Co. Ltd.; Faculty of International Cooperation Hiroshima University
Related Projects	-Dispatch of Japan International Cooperation Agency (JICA) experts (Adviser of primary education) -Dispatch of JICA volunteers (Math/Science teachers, Primary education) - Multi assistance grant (Support to PEDPII through UNICEF) - JICA Regional Training (Science experimental education at primary schools by JICA)

In the Project, the Teaching Package which is teaching methodology of science and mathematics for Grade 1 to 5 of primary schools was developed mainly by NAPE which is in charge of development of primary education training and implementing trainer's training. The Teaching Package was expected to be utilized at PTIs, which conduct C-in-Ed (Certification for primary school teachers) training, URCs, which conduct the subject based training at Upazila level, and UEOs, which give instruction on school management, general pedagogy and other subject related issues through sub-cluster training. The teaching package was expected to improve science and mathematics education of PTI instructors, their trainees who are future teachers and present teachers. The target area of the Project was the Mymensingh province. A total of five FTS<sup>3</sup> were elected, two each from Shodor Upazila and Gouripur Upazila<sup>4</sup>, and one PTI experimental school. There is generally one PTI located in each province, and only Mymensingh PTI is the target of the Project. It was expected that the training utilizing the Teaching Package would be expanded to all PTIs in Bangladesh.

<sup>3</sup> Four FTS were chosen from the Government Primary Schools and Registered Non-Government Primary Schools.

<sup>4</sup> Shodor Upazila is located in an urban area and Gouripur Upazila in a rural area.



**Fig. 1 The target flow of the Project**

### 1.3 Outline of the Terminal Evaluation

#### 1.3.1 Achievement of Overall Goal

At the time of Terminal Evaluation, improvement of the attendance rate, the promotion rate and the completion rate in FTS was observed, which contributed to the Overall Goal “Attainment in science and mathematics in primary education is improved in the target institutions.” Thus, it was judged that there was the prospect of achievement of Overall Goal.

#### 1.3.2 Achievement of Project Objective

The prospect of achieving the Project Objective is high. By working closely with JICA experts toward the development of the teaching packages, NAPE Specialists obtained the knowledge and skills that represent the fundamentals of high-quality science and mathematics education. PTI instructors improved their basic skills on the cycle of “planning classes, giving classes and reviewing” (plan-do-see). However, as of the Terminal Evaluation it had yet to be confirmed whether the instructors who participated in the training program were able to utilize and make the teaching packages a regular fixture in their lessons when they returned to each of their PTIs, or if they were able to improve

the quality of Certification in Education (C-in-Ed) training<sup>5</sup>.

### 1.3.3 Recommendations

- (1) It is desirable to take appropriate steps to ensure early approval of the teaching package for 5th grade.
- (2) It was agreed in the operational plan of the Mid-term Review (MTR) of the PEDP II to pay expenses to print and distribute the teaching packages for all primary schools in the country from the pool fund of the PEDP II. Appropriate administrative procedures to print and distribute the teaching packages should be taken promptly.
- (3) Directorate of Primary Education (DPE) and NAPE should encourage the extensive use of the teaching packages in PTIs, URCs, UEOs and all other related institutions.
- (4) NAPE should continuously serve an important role in monitoring/mentoring of PTIs and in giving instructions and advice on the use of the teaching packages in the future.
- (5) In order to extend the teaching packages in PTIs and primary schools, it is essential to include the teaching packages into the revised C-in-Ed curriculum. It is expected that DPE and NAPE will be proactively engaged in this work.
- (6) In order to implement activities given in recommendations above, the period of the JICA Project should be extended until March 2010.

## 2. Outline of the Evaluation Study

### 2.1 External Evaluator

Yuko Aoki, Kokusai Kogyo Co., Ltd.

### 2.2 Duration of Evaluation Study

Duration of the Study: November, 2012 – September, 2013

Duration of the Field Study: January 26, 2013 – February 13, 2013

June 29, 2013 – July 5, 2013

### 2.3 Constraints during the Evaluation Study

In this Ex-post evaluation, outputs and indicators in the Project Design Matrix (PDM) were reviewed and comprehended based on the Project's activities and their expected effect, and on analysis of the information collected, because the PDM and its indicators of the Project were unclear. Also, most of the indicators do not have numerical goals, therefore the numerical information was not collected at the time of the Terminal Evaluation. Due to the time constraints on collecting numerical information in this Ex-post evaluation, narrative

---

<sup>5</sup> C-in-Ed is issued by NAPE after the 1 year of training and passing a certification exam.

information was mainly collected to assess the achievements of the Project.

As the Project was conducted as a part of PEDP II, this Ex-post evaluation attempted to verify not only the Project itself but effectiveness of the Project as a part of the program and its contribution to the program as a whole.

### 3. Results of the Evaluation (Overall Rating: B<sup>6</sup>)

#### 3.1 Relevance (Rating: ③<sup>7</sup>)

##### 3.1.1 Relevance to the Development Plan of Bangladesh

Improvement of primary education quality was given as one of the important items in the Interim Poverty Reduction Strategy Paper (I-PRSP) 2003-2006 which was the National Development Plan of Bangladesh, at the time of Ex-ante evaluation. I-PRSP was finalized into PRSP in December 2005; PRSP is also taking importance on improvement of primary education quality as well as I-PRSP, and was the Development Plan of Bangladesh at the time of completion of the Project. Education for All: National Plan of Action (2003-2015) was made in 2007, in the middle of the Project's period. The quality of primary education is also a priority issue under this plan of action. As mentioned above, PEDP II was implemented as a component of the National Plan of Action, and the Project was integrated into Component 2 of the PEDP II for realization.

Accordingly, the objective of the Project had been consistent with the development policies of the country, and the improvement of primary education has been a priority issue of the development policies of the country at the time of Ex-ante evaluation, implementing and completion of the Project.

##### 3.1.2 Relevance to the Development Needs of Bangladesh

At the time of Ex-ante evaluation, the method of science and mathematics education in Bangladesh was by memorizing and copying from the blackboard in classrooms, consequently there was a problem with children losing interest in classes and with the low level of understanding. To solve the problem, the objective of PEDPII's component 2 was "improvement of educational quality in schools and in classrooms" using a child-centered approach.

NAPE is playing the leading role of primary school teacher training and improvement of educational contents, however it had not contributed enough to improving quality in the field of education due to a lack of cooperation with PTIs and training institutions for present teachers (URC and UEO). There was a strong need to establish the practical fostering and training of primary school teachers for child-centered and comprehensive classes by

---

<sup>6</sup> A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

<sup>7</sup> ③: High, ② Fair, ① Low

strengthening cooperation amongst NAPE—PTI—URC/UEO—primary schools. There was also a strong need in subject-wide issues and pedagogy such as the teachers’ guides corresponding to text books, achievement of methods of study that focus on discovery/exploration, and interactive child-centered class room management. The need for improvement of educational quality remained strong at the time of the Project’s completion, and there had been activities for them through PEDP II.

Consequently, improvement of quality of education had been an important development need of the county at the time of Ex-ante evaluation and completion of the Project, therefore there was a high consistency between the Project’s objective and the development need of the county.

### 3.1.3 Relevance to Japan’s ODA Policy

In Japan’s ODA Policy, Country Assistance Program for the People’s Republic of Bangladesh (2000) and JICA’s Country Assistant Program (2000), assistance to primary education was a prioritized area. The project has been highly relevant with the Japan’s ODA Policy.

This project has been highly relevant to Bangladesh’s development plan, development needs, as well as Japan’s ODA policy; therefore its relevance is high.

## 3.2 Effectiveness and Impact<sup>8</sup> (Rating: ③)

### 3.2.1 Project Outputs

#### 3.2.1.1 Project Output

The Project has 5 Outputs shown below to achieve the Project Purpose.

#### 1) Output 1

Output 1 is: “New teaching and learning methodologies are introduced through the development of Teaching Packages, “Number of authorized Teaching Packages” is set as an indicator.

NAPE acted as a leader, and the Teaching Packages were developed as Project activities. The Teaching Packages are collections of good practices on teaching methodologies including ideas for use in the classroom, materials and evaluation sheets for selected topics which are difficult to teach. As mentioned above, there is no numerical goal for the “Number of authorized Teaching Packages”, an indicator of Output 1. However, a total of 8 Teaching Packages for grade 1 to 5 were developed by the Project and were officially approved by

---

<sup>8</sup> Sub-rating for Effectiveness is to be made in consideration of Impact



the DPE. Thus, Output 1 is considered as achieved.

## 2) Output 2

Output 2 is: the lessons of science and mathematics are improved in the target institutions through the use of Teaching Packages. ①Frequency of activities of Study Group Activities (SGAs) and Study Workshops (SWs)<sup>9</sup>, ②Degree of improvement of the teaching ability in science and mathematics at FTS and a selected PTI, ③Number of training programs implemented, ④Degree of improvement of the teaching ability in science and mathematics at PTIs, ⑤Number of adopted materials, are set as indicators.

Since Output 2 means the same as Project Purpose, in the Ex-post evaluation it was interpreted as the approved Teaching Packages are utilized at the target institutions (NAPE, PTIs, target URC and UEO, and FTS).

- ① During the Project period, SGAs were held 5-10 times per month; SWs were held every 3 months. SGAs had provided opportunity to exchange opinions among teachers about improvement of science and mathematics classes by utilizing the Teaching Packages. SWs were the place to develop trial and revise Teaching Packages and also had provided opportunities to strengthen the relationships among people in related target institutions including teachers.
- ③ To promote utilization of the Teaching Packages, the training course for superintendents of all PTIs in the country was conducted 4 times, the training course for PTI instructors was conducted for 4 times in science and mathematics, and Teaching Package instruction training was conducted once for URC instructors.
- ⑤ The material which adopted the contents of Teaching Packages is the instructor fostering training (ToT) guideline of URC (approved in April 2008). This is the teaching aid for URC's subject training manuals. It was confirmed that a leaflet which is used at UEO's sub-cluster training included the concept of class management methodology on Teaching Packages, yet the leaflet is not an educational material.
- ② Mymensingh PTI has been implementing Quality Teaching Cycle<sup>10</sup> which is proposed in the Teaching Packages. As a result, one way lecture style of training changed to an interactive style that includes conversations with trainees. At FTS, teachers had started planning the classes as recommended in the Teaching Packages, and implementing interactive class and group activities in class to let students think by themselves.
- ④ According to the Survey Report on the status of Teaching Package implementation at PTIs,

---

<sup>9</sup> Study Group Activities were conducted at each target institution. Study Group Workshop was a cooperative workshop which related persons of different institutions participated in from NAPE, PTIs, URC, UEO and FTS.

<sup>10</sup> Quality Teaching Cycle is a type of plan-do-check-act (PDCA) cycle composed of planning classes, implementation, thinking back and feedback.

conducted by NAPE's specialists in November 2009, it was confirmed that all 18 sample PTIs were utilizing the Teaching Packages for lesson planning, teaching practices and C-in-Ed classes<sup>11</sup>.

Consequently, the Teaching Packages are utilized at target institutions, and Output 2 is considered to be achieved.

### 3) Output 3

Output 3 is: "the capacity of NAPE for training and research in science and mathematics is enhanced." ①Frequency of activities of SGAs and SWs, ②Degree of improvement of the teaching ability in science and mathematics at NAPE, ③Reports for all grades of science and mathematics, ④Report on C-in-Ed development and utilization of science and mathematics database, ⑤Frequency of using the educational database for the activities conducted by NAPE, ⑥Number of overseas/in-country trainees, are the indicators. As these indicators do not have numerical goals, expected outputs were read from the Project's reports and the minutes of meetings, and achievement of the expected outputs are evaluated through the interview to target institutions at the Ex-post evaluation.

- ① As showed in the indicator① of Output 2, SGAs and SWs had been conducted constantly during the Project period. SGAs and SW helped NAPE specialists to improve their capacity of training and researching of science and mathematics, and also promoted the opinion exchange among personnel in different institutions.
- ② Since this indicator means the same as Project purpose, it was interpreted as "NAPE's improvement of training implementation capacity". The interviews were conducted to 4 NAPE specialists/assistant specialists who were C/P at the time of Project period. All of them answered "We could improve our capacity of training implementation" and "We have now confidence to conduct Quality Teaching Cycle", through the development and trial of Teaching Packages, and through the monitoring of training utilizing Teaching Packages at PTIs. Thus, it was judged that the objective of the indicator was achieved.
- ③ "Study on Bangladesh Primary Mathematics and Science Curriculum and Textbooks (Grade 1 to 5 Math & Grade 3 to 5 Science)" is a report of issues and recommendations of the curriculum and textbook which NAPE's specialists/assistant specialist have found during process of development and trial of Teaching Packages. The report was made during the Project's period. In the interview to NAPE's specialists/assistant specialists at the time of Ex-post evaluation, all of them answered that through the making of the report, they could deepen their knowledge of each subject, and this helped them recognized the issues of the curriculum and text books. Making the report was useful for

---

<sup>11</sup> Source: JICA documents.

them, and the objective of the indicator was judged as achieved.

- ④ A report about C-in-Ed curriculum (a training course to get certification of teachers) is a report of issues and recommendations to be improved of C-in-Ed curriculum and study assessment methodology which NAPE's specialists/assistant specialists analyzed. The report was made during the Project's period. In the interview to NAPE's specialists/assistant specialists at the time of Ex-post evaluation, all of them answered that they obtained the opportunity to improve the way they implement training through making the report. The objective of the indicator was judged as achieved.
- ⑤ Training for Educational database<sup>12</sup> were conducted in a total 4 times to NAPE C/Ps in how to encourage its utilization and to database managers. C/Ps were able to use the database and refer to it for their work, however they were not able to improve their research capacity by newly utilizing it. The database manager(C/P) was not specialized in ICT and C/Ps were not used to using computers in their work. Because of that, the database had not been used after the Terminal Evaluation.
- ⑥ The indicator "Number of overseas/in-country trainees" does not show the type of training and numerical goals in the PDM. In the report of Terminal Evaluation, number of SGAs and SWs (143 and 11), the training for PTI superintendents and instructors (6) and Japan/third country training (total 3 times) were shown. A follow-up training for PTI superintendents and instructors was conducted after the Terminal Evaluation.

Accordingly, indicators of Output 3 were almost achieved. As it is considered that a capacity for research and training of NAPE was improved, Output 3 was achieved.

#### 4) Output 4

Output 4 is: "The progress of activities is reported regularly in DPE and PEDP II". "The number of progress reports approved" and "Annual Operation Plan" are set as its indicators. These indicators also do not have numerical goals. During the Project period, the activity plan and its progress were regularly submitted to the Training Division of DPE and approved. Output 4 is considered as achieved.

#### 3.2.1.2 Achievement of Project Objectives

Project Objective is: "The quality of teaching in science and mathematics is improved in the target institutions" and the target institutions are NAPE, PTIs, FTSS, selected URCs and UEOs. The indicators are: "The degree of improvement of teacher's class teaching, class management and attitude towards science and mathematics (the degree of improvement of

---

<sup>12</sup> Its contents are Pre-Activity/Post-Activity Study Report, electronic data of Teaching Packages, English translated text books, teachers' guides and curriculum, and various meeting minutes.

consciousness in terms of understanding and interest of trainees and pupils)”, and shown examples in the PDM as ①Students’ Perception about class②Teacher’s strategy in classroom teaching③Teacher’ s handling of topics④The numbers and types of expressions of both teachers and students.

The indicators do not have numerical goals to evaluate the achievements, as there were only collected opinions and comments of relate persons in the Terminal Evaluation Report and Project completion report, therefore it was difficult to judge the achievement of Project Objective at the time of Project termination. The Project Objective can be interpreted targeting improvement of only FTS teacher’s capacity among other target institutions, as “teachers” are targeted in the indicators. Only FTS teachers are called “teachers,” while other institutions have NAPE specialist, PTI/URC instructors, UEO officers). Also, the Terminal Evaluation report mainly described the changes of FTS teachers’ class.

In the Ex-post evaluation, analysis was conducted based on JICA documents and results of questionnaire/interview surveys<sup>13</sup> about each indicator to the related institutions at the time of Ex-post evaluation. The table below shows the change of mainly FTSs at the time of Project completion in terms of examples ①～④ of the indicator above.

Table 1: Situation of FTSs along with the examples of indicator at the time of Project completion

Examples of indicator	Situation at the time of Project completion
① Students’ Perception about class	<ul style="list-style-type: none"> <li>As a result of introduction of Teaching Packages to science and mathematics classes by FTS teachers, pupils were gaining an interest in the classes as they could understand the links between their daily life and what they had learnt in class.</li> </ul>
② Teacher’s strategy in classroom teaching	<ul style="list-style-type: none"> <li>FTS Teachers gained an understanding about the concept of Teaching Packages and making lesson plans before the classes.</li> <li>Teachers started making lesson plans in line with the Quality Teaching Cycle, whereas in the past they used to do the classes totally depending on teaching guidelines.</li> <li>URC’s instructors joined in the development of Teaching Packages, and understood the necessity of lesson planning. They also recommended conducting Quality Teaching Cycle in their own classes according to the developed Teaching Packages. They evaluated “Quality of education has improved at FTSs” and “the</li> </ul>

<sup>13</sup> A questionnaire telephone survey was conducted to all 57 PTI superintendents in the country and answers were received from 55.

	classes became effective and practical” from this experience.
③ Teacher’s handling of topics	<ul style="list-style-type: none"> <li>• Group activities and observations were introduced to the classes to let pupils think by themselves. For example, at the class of “sound”, teachers let pupils vocalize and discuss the sound around them. The classes became more practical and experimental in Shakariputti primary school.</li> <li>• Teachers started handling the materials familiar with their daily life, for example, teachers got a hint from Teaching Packages to make the teaching aids utilizing the materials familiar to them and used these materials in classes in Gavishmul primary school.</li> <li>• Teachers started spending more time on each question in mathematics class than before, and became more conscious about linkage between the subject and daily life in science class.</li> </ul>
④ The numbers and types of expressions of both teachers and students	<ul style="list-style-type: none"> <li>• Teachers started using words comprehensible for pupils.</li> <li>• Teachers became able to widen their expressions such as showing realistic examples, whereas before their classes consisted mostly of letting pupils memorize or copy from the black board. Pupils started giving reasons for their answers rather than just replying only “Yes or No”.</li> </ul>

Source: Terminal Evaluation report, JICA documents and answers of interviews at the time of Ex-post evaluation survey

In addition, there were changes observed in PTI instructors who conduct the training for primary school teachers including FTS teachers by utilizing Teaching Packages. According to the answers interviewed to Mymensingh PTI superintendent, as a result of PTI instructors’ understanding that Teaching Packages encourage learners’ creativity and support further comprehension of the content of classes, the Packages became proactively utilized; and as the topics included in Teaching Packages can be practically applied to other topics, trainees highly evaluated about the contents of trainings.

Changes to the classes for FTS teachers were observed during the Project period and the contents of the classes became comprehensible for pupils. At the PTIs, the place of training for teacher fostering, the lessons taught by instructors took into consideration the level of learners’ understanding by utilizing Teaching Packages. Accordingly, the Project Objective is almost achieved.

During the Project period, the target institutions including FTSs improved the quality of their classes through development and trial of Teaching Packages. In particular, through SGAs and SWs, equal discussions and collaborative activities were conducted among related

institutions which had not been interacting before, and reviewing the training and classes at each institution was conducted for improvement. Those actions ended up making the Teaching Packages more practical. It can be said that the Project contributed to strengthen the relationships among related institutions as the Project provided them with a place to discuss the improvement of classes and to share their experiences.

This project has largely achieved its objectives; therefore its effectiveness is high.

### 3.2.2 Impact

As mentioned in 2.3 above, results of overall activities on PEDP II and PEDP 3 were verified to evaluate their impact. There were several activities conducted from 2004 to 2009 as part of PEDP II in addition to the Project, such as various types of training for improvement of teacher's quality, increasing the number of primary school teachers, distribution of teaching materials, upgrading school facilities, scholarships for improvement of enrollment rate and school provided lunches<sup>14</sup>. In PEDP 3, JICA's technical cooperation project "Strengthening the capacity of teacher training in Primary Teacher Training Institutes (PTIs) to improve classroom teaching" has been conducted following on from the Project, and through this project activities were implemented to improve science and mathematics classes of PTIs and primary schools in Bangladesh by utilizing the Teaching Packages.

#### 3.2.2.1 Achievement of Overall Goal

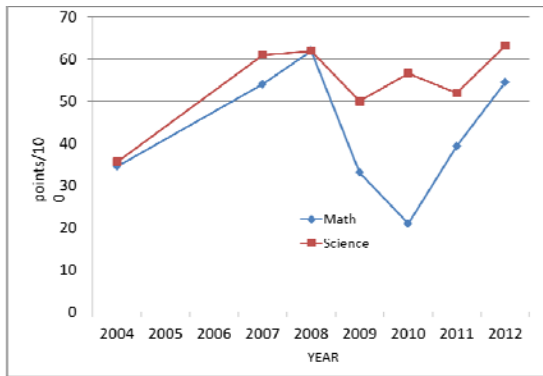
Overall Goal of the Project is "Attainment in science and mathematics in primary education is improved in the target institutions". The indicator is "Number and rate of successful learners in science and mathematics in the target institutions".

The score of mathematics and science of the FTSs (2004-2012) are shown below in figures 2 to 6. The data of 2004 and 2007 are from the Final Evaluation Report of the Project, the data from 2008 to 2012 were obtained at the time of Ex-post evaluation from each FTS. All data is the average score<sup>15</sup> of science and mathematics of grade 4 at each FTS. And the vertical axis is the score out of 100 points and the horizontal axis is year.

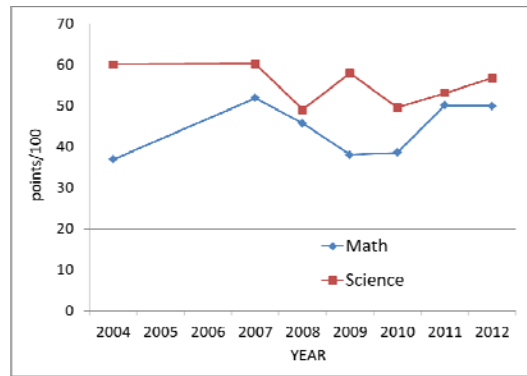
---

<sup>14</sup> From the interview with the Director General (who is also Program Director of PEDPIII), DPE. In PEDPII, not only increasing the number of primary school teachers, but various activities were conducted such as distribution of teaching materials and text books, scholarships and school provided lunches etc...especially for improvement of enrollment rate in rural areas and deprived areas. Consequently, the national averages of number of teachers and students have increased. Comparing the number of students in 2004 and 2012, Gavishmul and Tatra primary school, 2 FTS in rural area, increased in 1.8 times and 1.5 times, while other 2 schools of FTS in urban area remained almost the same or slightly decreased. This is considered as a effectiveness of PEDPII though, the rate on number of students per a teacher has not improved.

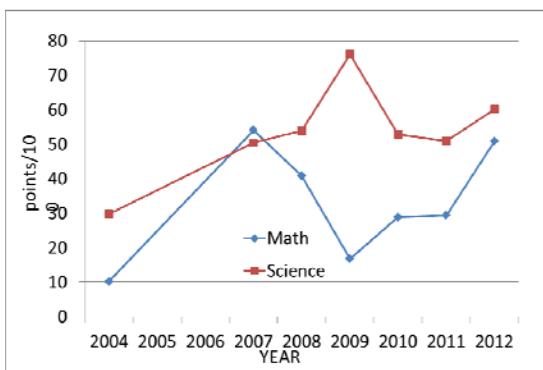
<sup>15</sup> Overall Goal of the Project is "Attainment in science and mathematics in primary education is improved in the target institutions" though, there was no data correspond to it. In the Ex-post evaluation, the average scores of final exams on science and mathematics in grade 4, which are the same as Terminal Evaluation, were obtained and analyzed.



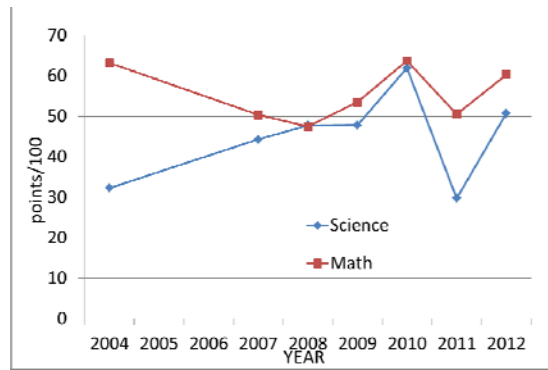
**Fig.2 Tatkra primary school**



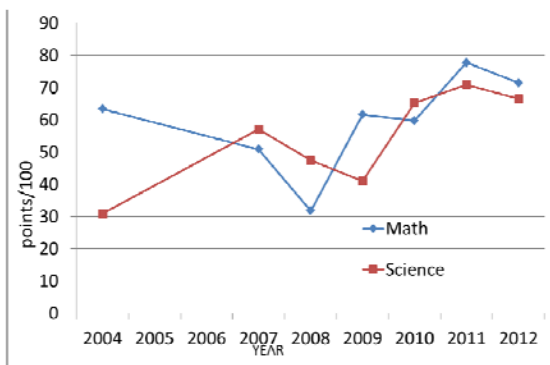
**Fig3. Washani primary school**



**Fig.4 Gavishmul primary school**



**Fig.5 Shakariputti primary school**



**Fig.6 PTI experimental school**

Sources of Fig.2~6 : Terminal Evaluation report and FTSs

It is difficult to figure out the overall trend as the scores of each school showed large fluctuations. However, by comparing the scores of 2004 (before implementation of the Project) and 2012 (at the time of Ex-post evaluation), the scores are improving except the science scores of 2 schools. Even though the scores of each school fluctuated every year and are not stable, according to the interview to DPE, overall trend is improving. Consequently, it is evaluated that improvement of scores can be observed after implementation of the Project. As mentioned above, because various measures were taken during the Project period, access to education has rapidly improved and there are more opportunities for learning by pupils in

rural areas where the learning environment is relatively more severe than in urban areas. It is noteworthy that the overall learning achievement is on an increasing trend.

#### 3.2.2.2 Continuity of training utilizing Teaching Packages after completion of the Project

The teacher training utilizing Teaching Packages have been conducted continuously at all PTIs in the country. The telephone interview survey to all PTIs in the country at the time of the Ex-post Evaluation, of the 55 PTIs superintendents who answered, 89% answered that Teaching Packages were useful in conducting training. PTI has continued conducting training utilizing Teaching Packages for PTI instructors as well as monitoring activities of the training. Specially, the developed SW and PTI cluster workshops (details are shown later in the Sustainability) promote information sharing of Teaching Packages utilization among NAPE, PTI and primary school teachers. As for URC and UEO, utilization of Teaching Packages is planned, at subject based training of all URCs in the country and at sub-cluster training of 2 UEOs which are target institutions of the Project. The contents of Teaching Packages will be planned to be included in the successor to C-in-Ed (details shown in the Other Impacts), and the phase 2 of the Project has been supporting it.

As for current situation of the classes utilizing Teaching Packages at primary schools, the interview survey to the FTSs was conducted. It was found that all 5 FTSs have been utilizing the Teaching Packages. As mentioned above, teachers are making handmade materials using the common items and implementing experience-type classes. All the curriculums and text books were revised in January 2013 and numerical order of topics and contents were changed. Despite this, the interviewed teachers said that because the Teaching Packages are arranged by topic, they were able to pick the topics as needed and apply to new curriculum and text books.

Phase 2 of the Project started in November 2010, and involves activities supporting improvement of overall teacher training system (supporting TED plan implementation, details later) and fixing Teaching Packages at PTIs and primary schools in the country. FTSs are not the target schools of the phase 2; however, FTS's science and mathematics classes will receive positive influences continuously from training for present teachers and PTI cluster workshops (described later).

#### 3.2.2.3 Other Impacts

##### 1) Impact on passing grades and graduation

As for trends in the graduation rate from 2004 to 2008, while national average remained 50%, the rate of FTS improved from 66% in 2004 to 83% in 2008 (JICA report). Moreover, the Ex-post evaluation survey reveals that the number of students graduating from FTS is increasing.

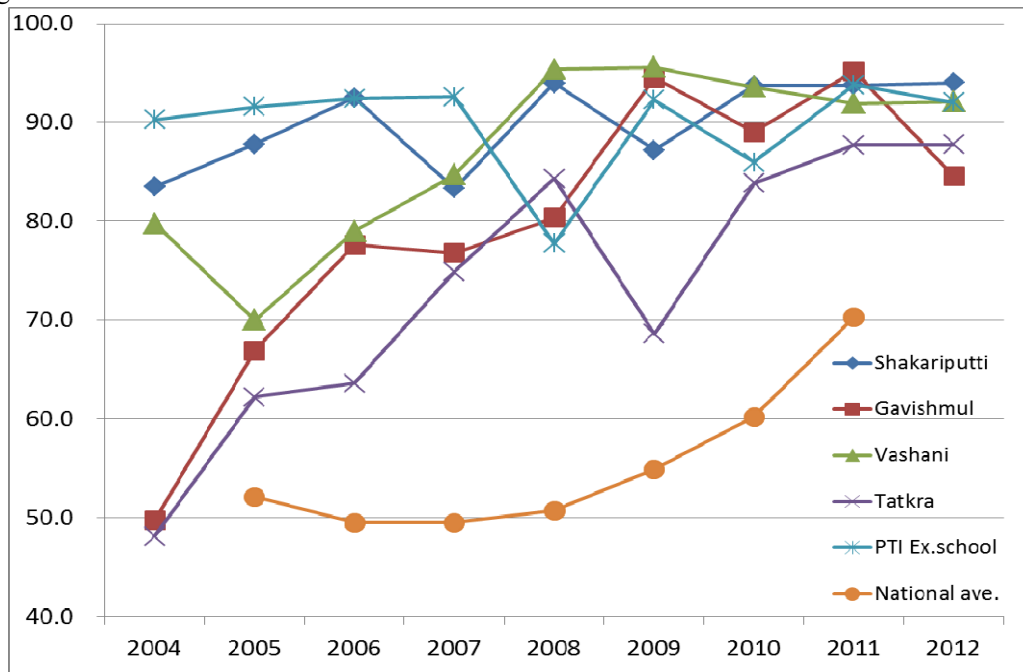


**Table 3 Trend in the number of pupils graduating from FTS**

	2008	2009	2010	2011	2012
Shakariputti	15	15	15	23	23
Gavishmul	12	8	15	36	16
Vashani	10	11	16	9	10
Tatkra	17	23	24	30	35
PTI experimental school	16	24	36	50	44

Source : FTS

Also, Passing/graduation rate in FTS from 2004 to 2012 (average of passing rate from grade 1 to 4 and graduation rate of grade 5) is shown below. An increasing trend is observed. As national average of passing/graduation rate is not available, national average of graduation rate of grade 5<sup>16</sup> is shown below for reference. The figure shows also increasing trend to a large extent.



**Fig 7 Passing/graduation rate of primary schools (%)**

Source: JICA documents (2004-08) and FTS (2008-12)

Passing/graduation rate is calculated by making denominator the number of participants in passing/graduation examinations, not by the number of pupils, and the number of pupils are decreasing along with grade (probably due to drop-out and non-attendance)<sup>17</sup>. Taking the

<sup>16</sup> Graduation rate of grade 5 are from Key Performance Indicator (2005-2011) of PEDPII.

<sup>17</sup> It was unable to trace trends in the actual number of pupils who completed the entire five years of primary education, however it is likely that those who could pass grade 5 was only 1/3 to 1/2 of the total who entered grade 1 in FTS, except PTI experimental school. Also, comparing the number of pupils of grade 1 and 5, in most cases, the numbers of grade 5 were far below of those in grade 1. At the comparison of

above into consideration, the passing/graduation rate is not a sufficient measure of the quality improvement of education. It is preferable to set the indicators as reduction of drop-out rate instead of passing rate and increase of graduates instead of graduation rate for measuring comprehensively the improvement of educational quality.

As seen above, passing rate, graduation rate and number of graduates show the trend of improvement.

## 2) Printing and distribution of Teaching Packages in the country by PEDP II's pool fund<sup>18</sup>

DPE highly evaluated the fact that classes utilizing Teaching Packages introduced by the Project were much improved, therefore it decided to distribute Teaching Packages to all primary schools and PTIs in the country through the budget of PEDP II, and these were distributed from 2009 to 2011. The number of Teaching Packages distributed and amount of contribution on the pool fund are shown below. DPE was strongly recommending utilizing Teaching Packages at the time of Ex-post evaluation. The telephone interview survey to all PTIs in the country found that 53 out of 55 were utilizing the Teaching Packages and considered them to be effective, showing that the packages are still being utilized.

**Table 5 Number of times Teaching Packages have been printed and amount of contribution by PEDP II pool fund**

	<b>Times printed</b>	<b>Amount (BDT)</b>	<b>Grade</b>
2008/09	255,300	15,000,000	1-4
2009/10	153,724	12,000,000	5
2010/11	152,070	n.a.	1-5
Total	561,094		

Note: Teaching Packages are for grade 1 to 5. Each package contains 8 volumes (5 for mathematics, 3 for science). Most of them were distributed to teachers of mathematics and science in primary schools.

## 3) Impact to the science and mathematics curriculums of primary education and revision of text books

During the implementation of the Project, NAPE made a presentation of the report on analysis of the science and mathematics curriculums of primary education and text books at the “seminar of the science and mathematics curriculums of primary education and analysis of text books” (Output 3). Policy decision makers of primary education in Bangladesh participated in the seminar including the Minister of primary education, Secretary General of primary education, Director General of department of primary education and its section chief. As a result of sharing issues of the curriculums and text books at the seminar, the secretary general

---

grade 1 in 2008 and grade 5 (those who could graduate) in 2012, numbers of grade 5 were 48% of grade 1.

<sup>18</sup> In PEDPII, under the agreement of 11 donors, the money is deposited in a fund, PEDPII pool fund, to conduct common activities.

commanded to revise the text books to the national curriculums and text books committee and DPE. As a part of activities for PEDP II, the curriculums and text books were going to be revised. Following the decision, the curriculum and text books technical committee was established and the revision was conducted.

#### 4) Impact to revision of the C-in-Ed training

As a result of discussions at the PEDP II meeting on the report “Study on Bangladesh Primary Mathematics & Science Curriculum and Textbooks (Grade 1 to 5 Math & Grade 3 to 5 Science)”, which was held mainly by NAPE, the vice minister of primary education commanded to revise the curriculum of C-in-Ed. Subsequently, Diploma in Education (DPED) was going to be established instead of C-in-Ed. The diploma course to obtain DPED was in trial stage at the time of Ex-post evaluation. Curriculums and text books of mathematics and sciences for the diploma course are including the components of Teaching Packages (Quality Teaching Cycle and so on) which were introduced to the Project.

#### 5) Impact on policy coordination

JICA long-term experts have been continuously supporting primary education in Bangladesh since December 1999, the year of commencement of PEDP I, and this is ongoing. The long-term experts together with JICA office of Bangladesh have conducted coordination among PEDP I/II and the government of Bangladesh. In addition, JICA volunteers (science and mathematics teachers, primary school teachers) have been dispatched all over the country since the Project was conducted and they have advised related personnel of primary education policy how to implement policy coordination. It was found in the interview survey of the Ex-post evaluation that the government officials of the country and other donor agencies highly evaluated their contribution.

It was confirmed that the science and mathematics training of target institutions, teachers’ classes at FTS, class management and attitudes were all improved by the Project at the time of the Ex-post evaluation; consequently the Project Objective “The quality of teaching in science and mathematics is improved in the target institutions” was almost achieved. As for the Overall goal, the improvement of the scores on science and mathematics in FTS was confirmed, and the expected effects were observed. In addition, the trend of increasing number of graduated pupils at FTS, distribution of Teaching Packages at all PTIs and primary schools in the country, and the impacts to the revisions of curriculums and text books for primary schools and PTIs as a result of the analysis reports on science and mathematics education and C-in-Ed curriculum, were observed. This project has largely achieved its objectives; therefore its effectiveness and impact is high.

### 3.3 Efficiency (Rating: ①)

#### 3.3.1 Inputs

Inputs of the Project, plan and actual performance are shown in the table below. Due to increase of personnel cost and the number of experts due to extension of Project period, actual performance exceeds the plan.

<b>Inputs</b>	<b>Plan</b>	<b>Actual Performance</b>
(1) Experts	<ul style="list-style-type: none"> <li>● unknown for Long-Term</li> <li>● unknown for Short-Term (Chief Adviser, Mathematics education, Science education, Project coordinator, Education evaluation, Database development, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>● 0 for Long-Term</li> <li>● 19 for Short-Term (Chief Adviser (1), Sub-chief Adviser (2), Training planning (3), Mathematics (2), Science (5), Database development (2), Education evaluation/Curriculum (1), Project coordinator (3))</li> </ul>
(2) Trainees received	Field(s) of training: Approx. 5/year	Field(s) of training: Training in Japan, Twice total 11 trainees
(3) Technical Exchange Training Programs	Field(s) of training: Unknown	Field(s) of training: Technical Exchange in Philippines, Once 9 trainees
(4) Equipment	Unknown (Equipment to make teaching materials, experiments materials, audio visual machines, cars etc.)	11.62 million yen (Equipment to make teaching materials, experiments materials)
Total Project Cost	Total 350 million yen	Total 654 million yen
Total Local Cost	Unknown	Unknown

Source: JICA

#### 3.3.1.1 Elements of Inputs

Dispatch of experts cannot be compared as the number planned at the time of Ex-ante evaluation of the Project is unknown. Acceptance of trainees and provision of equipment were conducted as planned. At the time of Ex-post evaluation, NAPE was not utilizing some of the provided equipment (experimental tools for science such as microscopes)<sup>19</sup> and the educational database.

<sup>19</sup> The experimental equipment was provided to conduct researches of profession in science and mathematics, at the same time to research of methodologies of teaching by using that equipment. The NAPE specialist were supposed to be assigned as C/P before implementation of the Project though, the personnel actually assigned were not professional in science and mathematics. Also, there was less needs of training improvement by using the equipment and deepen the subject knowledge. As a result, the provided equipment has not been used.

### 3.3.1.2 Project Cost

Input from Japanese side was planned as 350 million yen, however the actual cost was 654 million yen, which is significantly higher than planned (187% of the planned).

The reasons for the actual figure being higher than planned are due to the one and half year extension of the project period and increase of personnel costs. The plan at the time of Ex-ante evaluation assumed that the Project office would be established in Mymensingh without any Japanese experts based in Dhaka. It was planned for the experts to make trips to Dhaka to visit MOPME for the official approval of Teaching Packages, regular reporting about the progress of the Project to DPE and National Curriculum and Textbook Board, and other coordinating works such as attending the donor agencies. However, there were more workloads of coordination with DPE and PEDP II than expected, thus two Project offices were maintained in Dhaka and Mymensingh for the duration of the Project. This required an increase in the number of experts and an increase in the total assignment period.

The Project is a component of the sub-sector approach which requires cost and works of coordination, and the distance was far between NAPE in Mymensingh and the base of PEDP II in Dhaka. All conditions and requirement above should have been considered, and based on this a more accurate project cost should have been able to be estimated at the time of Ex-ante evaluation.

### 3.3.1.3 Period of Cooperation

Period of cooperation was planned for 4 years from October 2005 until October 2008, however, the actual period was 5 years and 6 months, and longer than planned (138%).

The Project period was extended because, mainly due to the general election in Bangladesh, several activities were delayed such as ① finalization and DPE approval of Teaching Packages for grade 5, ② follow up training and monitoring of the packages to PTI superintendents and instructors in the country, ③ cooperation and supporting works for PEDP II.

Both project cost and period of cooperation significantly exceeded the plan, therefore efficiency of the project is low.

## 3.4 Sustainability (Rating: ③)

### 3.4.1 Related Policy towards the Project

”Education for All: National Plan of Action 2003-2015” which was finalized in 2007 was the policy for improving the quality of primary education at the time of Ex-post evaluation. Under the national plan, PEDP II was established as an implementation program. Consequently, there was no change of the policy since the time of Ex-ante evaluation.

In PEDP 3 after PEDP II, National Plan and Strategy for Primary Teacher Education and

Development (TED Plan) was made in September 2011 and approved by MOPME. Summary is as follows.

- 1) Implementation of teacher training and training courses
- 2) Implementation of supervision and advice to teachers and establishment of supporting networks
- 3) Establishment of the occupational competence and implementation of training to teachers, superintendents and AUEOs
- 4) Establishment of the occupational competence of NAPE, PTI and URC instructors and implementation of training

As above, it was observed that policy and system for quality improvement of education have continued at the time of Ex-post evaluation.

### 3.4.2 Institutional and Operational Aspects of the Implementing Agency

To make the Project effectiveness sustainable, the science and mathematics teaching training for PTI instructors and teachers at each school by utilizing Teaching Packages have to be conducted and monitored at each training institution. Implementation of training and monitoring at each institution at the time of Ex-post evaluation are shown below.

**Table7 Implementation of training and monitoring at each institution**

Related institutions and personnel	Implementation of training • Monitoring
[DPE Training division] Director(1), Sub-director(1), Assistant head(1), Education Officer(1), Sub-officer(1)	DPE Training division is in charge of training for primary school teachers, and it is expected to monitor continuously the overall Project outputs. There is no vacancy in the division, and monitoring to the implementation of the class utilized Teaching Packages at PTIs and primary schools has been continuously conducted. In addition, the division has been monitoring the phase 2 of the Project under PEDP III.
[NAPE Faculty of science and mathematics] Senior Specialist(1, Vacant), Specialist Science and Mathematics(1 each), Assistant Specialist science and mathematics (2 each), Total 7	NAPE is conducting training for PTI instructors, and through the training and DPED trial works, is monitoring the implementation of classes utilizing Teaching Packages. There is a vacancy of senior specialist though, therefore the works of it has been combined with the works of specialist and assistant specialist, and there is no problem in conducting training and PTI monitoring. Also, as an activity of PEDP III (the phase 2 of the Project), the faculty has been participating in the study workshops organized at PTIs, and sharing the information about the utilized Teaching Packages at PTIs in Bangladesh.
[Mymensingh PTI] Instructors [ Total 16, of them, science(2), mathematics (2), no vacant ] , Number of trainees (approx. 200), Number of class room (5)	Mymensingh PTI is one of the pilot schools which implementing the trial of DPED course. There is no vacancy at the moment; the trainings are conducted based on the curriculum of DPED course.

<p>[All PTIs in the country] Each PTI has on ave. 10 instructors. Average of trainees are 141 at each PTI, 16 trainees for each instructor. However it is difficult to calculate average as vacancy at each PTI varies from zero to over half<sup>20</sup>.</p>	<p>All PTIs are continuously conducting the teacher training utilizing Teaching Packages, and going to be introduced DPED course sequentially. As seen the left column, there are vacancies of instructors, however there is a plan to cover these vacancies with recruitment in the PEDP III<sup>21</sup>.</p>																								
<p>[URC] Both URC Gauripur (rural area) and URC Shodor (urban area) have one instructor each, and there is no vacancy.</p>	<p>URC instructors are conducting the monitoring for the quality of the class on primary school teachers and subject based training utilizing Teaching Packages. URC instructors had received the training courses of the Project for utilization of Teaching Packages, and there is no problem observed at the monitoring system for primary schools' utilization of the packages.</p>																								
<p>[UEO] UEO Shodor, there is one UE Officer and 9 AUEOs were enrolled, and no vacancy. UEO Gauripur, there is one UE officer and 7 AUEO supposed to be assigned though, there were 4 vacancy of AUEO.</p>	<p>AUEO are conducting not only the sub-cluster training but surveys on operation of primary schools, through the survey monitoring of Teaching Packages utilization is implemented. UEO Gauripur has vacancy, however it will be filled by PEDP III.</p>																								
<p>[FTS] Number of teachers, pupils and pupil/teacher at each FTS are shown below. All FTS operate 2 shifts system (35 min/class, morning and afternoon shift)</p> <p><b>Table 7 Number of teachers, pupils and pupil/teacher</b></p> <table border="1" data-bbox="225 1106 719 1400"> <thead> <tr> <th></th> <th>Teac her</th> <th>Pupil</th> <th>Pupil /Teac her</th> </tr> </thead> <tbody> <tr> <td>PTI Experimental school</td> <td>5</td> <td>210</td> <td>42</td> </tr> <tr> <td>Gavishmul</td> <td>4</td> <td>300</td> <td>75</td> </tr> <tr> <td>Shakariputti</td> <td>5</td> <td>168</td> <td>34</td> </tr> <tr> <td>Tatkra</td> <td>7</td> <td>460</td> <td>66</td> </tr> <tr> <td>Vashani</td> <td>4</td> <td>210</td> <td>53</td> </tr> </tbody> </table>		Teac her	Pupil	Pupil /Teac her	PTI Experimental school	5	210	42	Gavishmul	4	300	75	Shakariputti	5	168	34	Tatkra	7	460	66	Vashani	4	210	53	<p>The curriculum and text books were revised in January 2013, however the Teaching Packages which are the output of the Project have been continuously utilized at each school. Number of students per teacher (excluding superintendent) is 42-100. Number of students are decreasing along with grades, it seems that lower grades' classes are overcrowded. PEDP III has been increasing the number of teachers, developing educational infrastructure, and implementing various training courses for better quality of teachers. The situation of FTSs will be expected to be improved.</p>
	Teac her	Pupil	Pupil /Teac her																						
PTI Experimental school	5	210	42																						
Gavishmul	4	300	75																						
Shakariputti	5	168	34																						
Tatkra	7	460	66																						
Vashani	4	210	53																						

Source: Results of interview to each institution at the time of Ex-post evaluation

As seen above, operation of each institution is clear, and there are plans to fill the vacancies or have certain staff take on two roles, therefore there is no problem observed regarding implementation of training and monitoring system. Consequently, it is judged that there is no problem in the organizational aspects to sustain the Project effect.

### 3.4.3 Technical Aspects of the Implementing Agency

Activities to maintain and improve technical skills of teaching utilizing Teaching Packages by each institution are shown as follows.

<sup>20</sup> Source: Telephone interview survey at the time of Ex-post evaluation (55PTIs answered out of all 57 )

<sup>21</sup> "Vacancies will be filled at PTI, UEOs and URCs and local capacity in planning and monitoring functions will be strengthened." Sub-Component 3.1.1 Field-Level Offices Strengthened, **3.1 Decentralization, Component 3 Decentralization and Effectiveness, PEDP3 Main document, 2011**

[DPE]

In the phase 2 of Project, the expert team supported DPE training division making the action plan to practically implement the TED plan. The TED plan is the national plan on capacity development of primary school teachers. TED Plan includes pivotal activities such as the lesson study, SGA and SW supported by the Project to promote the teaching method utilizing Teaching Packages. DPE has been proactively working for technical improvement of primary school teachers and trainers/lecturers of each institution.

[NAPE]

NAPE makes annual work plan and training calendar every year, and conducts training. The teaching method utilizing Teaching Packages for PTI instructor training is included in the training works of NAPE, and training courses are conducted every year following the plan. In DPEd course trial mentioned above and PEDP III/the phase 2 of Project activities, there are opportunities to maintain the techniques obtained in the Project.

[PTI]

SGA and SW introduced by the Project are the places to exchange opinions aiming to strengthen the capacity of PTI instructor training implementation, and have been continuing and developing in the phase 2. For example, “PTI cluster study workshop” is a developed form of SW, and these workshops have been held since June 2011 as an activity of the phase 2. The PTI cluster study workshops are held as follows: the country is divided into 10 cluster areas, and the PTI instructors of each cluster holds workshops three times a year at the cluster representative PTI to discuss and share the issues of training and solutions for improvement. Mymensingh PTI is a cluster representative PTI. The manual of the study workshop activity is prepared by the JICA expert team of the phase 2<sup>22</sup>. Also, among those primary schools in each province, one from urban area and another one from rural area join the study workshops. PTI cluster study workshops have changed its name to Teacher Support Network through Lesson Study (TSN) since January 2013. The workshops have been implemented and funded as an activity of PEDP3 annual operating plan at all 57 PTIs in the country. As seen above, SW and SGA have developed and continuously conducted to maintain and improve the training ability of PTI instructors, and no problems were observed.

[URC/UEO]

The Project implemented activities to promote utilization of Teaching Packages for URC’s subject based training and UEO’s sub-cluster training. Activities for improvement of training techniques have been conducted by TED action plan mentioned above for staff of both institutions. It is expected that sustainability and development of the Project outputs in both training courses through the phase 2 of the Project.

---

<sup>22</sup> Materials of the study workshops are the Teaching Packages already distributed to all PTIs in the country.



[FTS]

According to the interviews with FTS teachers at the time of Ex-post evaluation, while the curriculum and text books have been revised, they are using Teaching Packages by picking up topics and applying to the new curriculum and text books. There is no technical problem observed in utilization of Teaching Packages.

Consequently, technique of related personnel in each target institution is maintained.

#### 3.4.4 Financial Aspects of the Implementing Agency

Budget and financial situation of each target institution is as follows, financial sources are regular budget and budget from PEDP3. PEDP3 will be conducted until 2016, therefore no budget or financial problems are envisaged until then. However from 2017 it is still unclear what the financial situation will be like. It is hoped to discuss and prepare about the budget from 2017 as soon as possible.

[DPE]

DPE is allocating the budget which is necessary for teacher training (such as salary of instructors, daily allowances of trainees, rental space, text books and other materials) to PTIs and URC/UEO. According to the interview to DPE staff, DPE had enough budget allocated from regular budget and PEDP3 to distribute necessary amount to each institutions.

[NAPE]

Budget for the training for primary school teachers and PTI instructors by NAPE are allocated from DPE's regular budget, PEDP3 and donor agencies. Regular budget from DPE to NAPE since 2007 to 2012 (Fiscal year of Bangladesh starts from July) is shown in the table below. Necessary amount of budget is allocated every year to conduct the training as planned, there is no financial problem.

**Table 8 NAPE budget**

unit : BDT

2007	2008	2009	2010	2011	2012
2,052,000	2,750,000	4,700,000	7,044,000	9,103,300	6,002,975

Source: Annual Work Plan & Training Calendar, NAPE

Note: Excluding the training budget of PEDP II/3

[PTI]

Budget for the training activity at each PTI is allocated by PEDP3<sup>23</sup>. Since January 2013, TSN by PTI (Former “PTI cluster study workshop”, name has changed due to the change of financial source, TSN is funded by PEDP3. See section 3.4.3) has been conducted, and necessary budget is securely allocated. The phase 2 of the Project only conducts technical support.

[URC/UEO]

Budget for the subject based training of URC is supposed to be allocated by PEDP3 on actual implementation each time; there is no shortage for implementation. Training at URC is a target of TED plan though. However, no training was conducted since PEDP3 has started. As for UEO, budget for the sub-cluster training which has to be conducted every 3 months is allocated by DPE. There is no problem in allocation of the budget and the training courses are smoothly conducted.

[FTS]

Teaching Packages are already distributed to FTSs, there is no budget needed for utilization, and thus there is no financial problem conducting the classes using the packages<sup>24</sup>. According to the interview at the time of Ex-post evaluation, there was an opinion about lack of equipment such as computers and other equipment of the schools. However, educational infrastructure has been strengthened by PEDP3, and the situation in FTSs is expected to be improved.

No major problems have been observed in the policy background, the structural, technical, financial aspects of the executing agency, therefore, sustainability of the project effects is high.

## 4. Conclusion, Lessons Learned and Recommendations

### 4.1 Conclusion

The Project had an objective of improving the teachers’ teaching method of science and mathematics and the instructors for teacher training in FTS in Mymensingh province. The Project targeted the NAPE and related institutions of primary education in the province, and developed science and mathematics teaching materials, and promoted cooperation and collaboration among teachers and education related personnel. The Project was implemented under the sub-sector wide program, PEDPII.

---

<sup>23</sup> Interview to DPE Training Division, July 2013.

<sup>24</sup> Interview to the experts of phase 2 and FTS.

Quality improvement of primary education has been an important issue for the national development policy in Bangladesh. The need to improve the teaching capacity of teachers to implement the comprehensible classes for pupils has also been high. The primary education support has been one of the focus fields of Japan's ODA plan for Bangladesh. Consequently, the relevance of the Project is high.

As for the Project Objective, the science and mathematics instruction has improved through the utilization of Teaching Packages, which are collections of good practices on science and mathematics teaching methodologies and which were introduced in target institutions. Consequently, the desired quality of teaching in science and mathematics was almost achieved at target institutions. As for the overall goal, not only the Project but also various activities of PEDP II such as increasing the number of teachers, distribution of teaching materials and equipping classrooms contributed to the trend of improving the scores in science and mathematics. The impact was observed, for example, distribution of Teaching Packages in the entire country by the fund of PEDPII, therefore improvement of teaching using the Teaching Packages of the Project was highly evaluated. As above, effectiveness and impact are judged as high.

As for efficiency, the cooperation period was extended for one and a half years because of delays in the approval of Teaching Packages, extending cooperation coordination supporting works due to the extension of PEDPII period and so on. This resulted in the cooperation amount much higher than planned due to the increase of the cost of dispatching experts, thus efficiency is evaluated low. Sustainability is evaluated to be high because there are no issues from institutional, technical and financial aspects of sustainability when conducting training with the Teaching Packages.

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

## 4.2 Recommendations

### 4.2.1 Recommendations to the Implementing Agency

#### ① Utilization of experimental equipment by NAPE

As mentioned above, experimental equipment and education database provided to NAPE are not utilized. The reason is that allocation of personnel and time places too much importance on training, and there is no system to encourage the lesson study utilizing the experimental equipment. As for the educational database, there is no custom to use the personal computer among NAPE specialists, also there is no personnel who has knowledge of ICT and can handle the database.

Experimental equipment was provided to deepen the subject knowledge of science and mathematics, to improve the teaching methods, and to improve the training contents of science and mathematics education conducted by NAPE. While the educational database was

provided to establish the database of basic data and information of primary education and of trainings and their actual achievement for efficient understanding of training works and obtaining the related statistical information of pedagogy study.

It is preferable that NAPE utilizes the equipment and database to seek more improvement of training and research.

#### ②Securement of budget after PEDP3

Each activity is funded by regular budget and PEDP3 at the moment. Since the future prospect of funding from donors is not clear after PEDP3, it is preferable to discuss and prepare about the budget as soon as possible.

### 4.2.2 Recommendations to JICA

#### 4.3 Lessons Learned

##### ①Descriptions in the PDM should be clear and set measurable indicators

As mentioned at the column 2.3, expression of PDM outputs and indicators of the Project are unclear, and some outputs are the same as the Project objective. Most of indicators are not numerical goals such as “Number of XX,” ”Frequency of XX” or “Report of XX” which are not able to measure the achievement. Neither at the Mid-term Review<sup>25</sup> nor at Terminal Evaluation, there was no discussion about setting numerical goals or revision of indicators. Because there is no setting of clear expression of the goal and practical target value, it is supposed that it was difficult to manage and to know the extent of achievement of the Project goal which was planned at the time of Ex-ante evaluation during the implementation of Project. Even at the time of Ex-post evaluation, it was not easy to understand what the Project intended to achieve. There is a risk that the intended effectiveness was not evaluated appropriately, and the Ex-post evaluation was unable to show quantitative outputs. To avoid this, appropriate expression of objective, outputs and indicators in PDM should be made, and practical, measureable indicators to evaluate the expected change by Project implementation should be carefully designed.

##### ②Project in Sub-sector wide program needs to consider the coordination cost

The Project is a part of activity on PEDP II, and was required to trip between Mymensingh where NAPE located and Dhaka for daily coordination works. Therefore, project cost and period of cooperation significantly exceeded the plan. To implement the Project under the sub-sector wide program, it is necessary to conduct coordinating works to keep in line with

---

<sup>25</sup> PDM was revised following the advice of Mid-term Review Evaluation though; there are not “date of revision” and the “version” written in the revised PDM.

the program as a whole, and the coordination cost should have been included in Input or Project Cost at the designing of the Project.

- ② On a parallel with project technical support, implementing the policy coordination by JICA long-term expert is essential

At the beginning of the Project, the Project was not under the PEDP II. Since it was not allowed to conduct activity outside of PEDP II for primary education in Bangladesh, the expert team of the Project started coordinating with the secretary of PEDP II. As a result, the Project was included in annual operational plan of PEDP II from the second year. Then, the activities of the Project and its outputs of the teaching method using Teaching Packages were highly evaluated by the government, members of the expert team were appointed for revision of text books on primary education of science and mathematics. At the time of Ex-post Evaluation, according to the interview to the Japanese experts of phase 2 of the Project, JICA has a good reputation for its support for primary education on science and mathematics in Bangladesh, and indeed DPE has frequently asked JICA experts for consulting in this field.

As a background to this, the expert team, JICA Bangladesh office staff and the long-term experts have been supporting and conducting coordination works with PEDP II secretariat and Bangladesh government. Being involved in the donor coordination along with the sub-sector wide program and decision making process of the government was an important factor in the above success. In PEDP II/3, there are coordination meetings of donors to operate the pool fund, and JICA long-term experts (primary education adviser) has been assigned for the meetings to coordinate the activities of phase 2 of the Project. According to the interview to other donor personnel at the time of Ex-post evaluation, they were highly evaluated about the JICA long-term expert and it was observed that the overall presence of JICA in the program activity was high.

- ③ For continuing activity after Project completion, the budget after completion of the donors' funding needs to be secured and prepared

The Project is utilizing the donor fund of PEDP II/3, which Japan has also contributed to, for the budget of activities after completion of the Project. In this kind of scheme, it has to be considered how to obtain the budget after completion of donors' financial support. To continue the activities after completion of the Project, preparations need to be made as early as possible to secure the budget after completion of the donors' funding.