

Country Name	<b>Strengthening Mathematics, Science, and Technology Education Project (PREMST) Phase 2</b>
Republic of Senegal	

**I. Project Outline**

Background	<p>In Senegal, the gross enrollment rate of elementary education reached 93% in 2009. Meanwhile, the examination passing rate for the completion of elementary education (CFEE) remained at 61%. One of the causes for the low passing rate was attributed to low quality of teachers. In order to cope with this situation, JICA implemented the “Strengthening Mathematics, Science, and Technology Project Phase 1 (PREMST 1)” (2007-2010) aiming at the increase in teachers’ participation rate in the cluster training<sup>1</sup>, the improvement of teachers’ teaching skills, and the increase in the CFEE examination passing rate in 3 regions in the country. PREMST 1 has established a teachers’ training system composed of a cascade training framework<sup>2</sup>, school-based training<sup>3</sup> and training for principals. The cascade training framework was structured with regional training, local training and cluster training. However, there were remaining issues in the quality improvement of classes in all 14 regions in the country through the quality improvement of training of local trainers (representatives of clusters) and school-based training.</p>												
Objectives of the Project	<p>Through strengthening the capacity of trainers by means of regional and local training and application of class study<sup>4</sup> to cluster and school-based training in all 14 regions in the country, the project aimed at enhancement of teachers’ knowledge on subject contents and teaching methods, thereby contributing to improving academic performance at elementary level in the subject of mathematics, science, and technology.</p>												
	<ol style="list-style-type: none"> <li>1. Overall Goal: To improve the academic performance at elementary level in the subject of mathematics, science, and technology.</li> <li>2. Project Purpose: To improve the quality of teaching to support learning mathematics, science, and technology.</li> </ol>												
Activities of the Project	<ol style="list-style-type: none"> <li>1. Project Site: all 14 regions in Senegal</li> <li>2. Main Activities: <ol style="list-style-type: none"> <li>1) integration of the continuing training model in the existing training framework,</li> <li>2) strengthening of the capacity of trainers,</li> <li>3) enhancement of the teachers’ knowledge on subject contents of mathematics, science, and technology and teaching method, and</li> <li>4) regular practice of lesson studies at cluster and school levels.</li> </ol> </li> <li>3. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Senegalese Side</td> </tr> <tr> <td>1) Experts: 5 persons</td> <td>1) Staff Allocated: 2,132 persons</td> </tr> <tr> <td>2) Trainees received in Japan: 55 persons</td> <td>2) Land and Facilities: project office and training facilities</td> </tr> <tr> <td>3) Training in the third country (Kenya): 15 persons</td> <td>3) Local Cost: cost for utility of offices (electricity, water and telephone), training, monitoring and evaluation, and operational cost</td> </tr> <tr> <td>4) Equipment: PCs, printers, copy machines, and other equipment necessary for developing modules and organizing training</td> <td></td> </tr> </table> </li> </ol>			Japanese Side	Senegalese Side	1) Experts: 5 persons	1) Staff Allocated: 2,132 persons	2) Trainees received in Japan: 55 persons	2) Land and Facilities: project office and training facilities	3) Training in the third country (Kenya): 15 persons	3) Local Cost: cost for utility of offices (electricity, water and telephone), training, monitoring and evaluation, and operational cost	4) Equipment: PCs, printers, copy machines, and other equipment necessary for developing modules and organizing training	
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Project Period	September 2011 - August 2015	Project Cost	(ex-ante) 270 million yen, (actual) 341 million yen										
Implementing Agency	Ministry of National Education (MEN)												
Cooperation Agency in Japan	None.												

**II. Result of the Evaluation**

## &lt;Special Perspectives Considered in the Ex-Post Evaluation&gt;

- Status of the achievement of Overall Goal, other Impacts and Sustainability of the project were influenced by other projects in the field of basic education including the “Quality Improvement and Equity of Basic Education Project (PAQEED)” (2014-2019) assisted by the World Bank, the Global Partnership for Education, and Canada and the “Project for Improving the Learning of Mathematics in Primary Education (PAAME)” (2014-2019) assisted by JICA, and it’s difficult to extract the sheer effects of this particular project. Therefore, the evaluation results below included the influence of other projects.

**I Relevance**

## &lt;Consistency with the Development Policy of Senegal at the Time of Ex-Ante Evaluation and Project Completion&gt;

The “Economic and Social Policy Document (DPES)” (2011-2015) placed the improvement of quality of primary education as one of the priority issues and emphasized the importance of in-service training (INSET) as a strategy for it. And the “Program for Improvement of Quality, Equity and Transparency (PAQUET)” (2013-2025) placed high priority on the quality improvement of education/learning through the introduction of new curriculum focusing on mathematics and science and technology. Therefore, the project was consistent with the

<sup>1</sup> Teachers’ training conducted several times a year in a cluster. One cluster is organized by 5 to 10 schools in one school district.

<sup>2</sup> Hierarchical training framework composed of regional training for regional trainers, local training for local trainers (cluster representatives), and cluster training for all teachers in a cluster. Regional trainers are trainers for local training, local trainers are trainers for cluster training.

<sup>3</sup> School-based training conducted for the teachers in a school.

<sup>4</sup> A teacher conducts a class observed by several observers including teachers, the principal, school inspectors and others. After the class, the teacher and observers discuss to find ways for better teaching methods and class management.

development policies of Senegal at the time of ex-ante evaluation and project completion.

<Consistency with the Development Needs of Senegal at the Time of Ex-Ante Evaluation and Project Completion>

At the time of ex-ante evaluation, according to PAQUET, the completion rate of primary education was low as 67% in 2011, and the rate of the 4th grade students who achieved the qualifying marks on mathematics worsened from 56% in 2002 to 39% in 2010. At the time of project completion, the survival rate for the final grade was 58% in 2014 (UNESCO) and the examination passing rate for CFEE was 62% in 2016 (MEN). Therefore, the project was consistent with the needs of Senegal at the time of ex-ante evaluation and project completion.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The "Country Assistance Program for the Republic of Senegal" (April 2009) set the two major goals: 1) improvement in the quality of life of the poor population in rural areas and 2) establishment of the foundation for sustainable economic growth. Education was one of the priority areas for enhancement of basic social services as one of the minor goals under the major goal 1). Therefore, the project was consistent with the Japan's ODA policy for Senegal at the time of ex-ante evaluation.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was achieved by the time of project completion. The average score of the lesson observation on teachers improved from 1.30 in 2012 to 1.43 in 2015 (Indicator 1). The percentage of teachers who attained over 1.5 by the lesson observation was increased to 47% (Indicator 2: target was 50%).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have been partially continued since the project completion. Practice of the lesson observation introduced by the project has been limited to some schools on an unprompted basis because it is not mandatory. Therefore, observation data collection and feedback system to upper level administrations has not been established, and the observation data were not recorded and fed back to the Inspectorates of Regional Education Authority (IAs) and MEN as in the way the project assumed. Through the questionnaire and interview survey on IAs and other related organizations, it was confirmed that some schools have kept practicing the lesson observation, though no specific data about the number and locations of the schools were available.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been partially achieved at the time of ex-post evaluation. The national average of elementary level test performance on mathematics has been improved from 40.3 in 2012 to 45.8 in 2018, thus the Overall Goal for mathematics has been achieved. Meanwhile, the one on science and technology has been declined from 37.5 in 2012 to 36.3 in 2015. After the completion of the project, no tracking survey has been conducted on the test performance of science and technology.

<Other Impacts at the time of Ex-post Evaluation>

According to the former project coordinator, the learning environment has been improved with the substitute materials like abacuses, digital paper (paper cards for calculation training) and others provided by this project since schools have been suffering from the shortage of teaching materials.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results
Project Purpose: To improve the quality of teaching to support learning mathematics, science and technology.	Indicator 1 In the lesson observation, the average obtained by a sample of teachers is increased to 1.5 out of 3.0.	Status of the Achievement: Achieved (Partially continued) (Project Completion) Out of 113 teachers targeted by the project, 51 teachers were surveyed in both base-line and end-line lesson observation in 2012 and 2015 respectively. The average score of the lesson observation on the 51 teachers has risen from 1.30 in 2012 to 1.43 in 2015. (Ex-post Evaluation) After the completion of the project, practice of the lesson observation introduced by the project has been limited to some schools on an unprompted basis because it was not mandatory. Therefore, observation data collection and feedback system to upper level administrations has not been established, and the observation data were not recorded and fed back to IAs and MEN as in the way the project assumed.
	Indicator 2 In the lesson observation, the percentage of teachers who attain at least 1.5 (out of 3.0) is increased to 50%.	Status of the Achievement: Achieved (Partially continued) (Project Completion) Out of the 51 teachers surveyed in 2015, 24 teachers (47%) have improved their scores to over 1.5. (Ex-post Evaluation) Same as above.
Overall Goal: To improve the academic performance at elementary level in the subject of mathematics, science, and technology.	Indicator Result of performance test developed by the project improves.	(Ex-post Evaluation) Partially achieved The national average of the performance test result of mathematics has been improved from 40.3 in 2012, 42.3 in 2015, and 45.8 in 2018. The test results' improvement was influenced by the effects of other projects including PAQEEB and PAAME. Comparatively, the average test result of science and technology has been declined from 37.5 in 2012 to 36.3 in 2015. No data were available after 2016 since no tracking survey has been conducted after the completion of the project.

**3 Efficiency**

Although the project period was within the plan (the ratio against the plan: 100%), the project cost exceeded the plan (the ratio against the plan: 126%). The outputs were produced as planned. Therefore, efficiency of the project was fair.

**4 Sustainability**

<Policy Aspect>

The “PREMST Training Model” developed by the project was approved as a model for in-service training by MEN in August 2013. However, the ministerial directive to institutionalize the model nationwide has not been issued yet though it was recommended by the terminal evaluation. Therefore, the PREMST Training Model has not been institutionalized yet. Substituting for the directive, the Direction in charge of Elementary Education (DEE) issued a guidance in 2016 to disseminate the PPEMSR Training Model in schools.

<Institutional Aspect>

The number of national trainers and regional trainers has been fixed by the project and maintained by MEN after the project. While the number of local trainers has been fluctuating after the project, it was fixed by MEN in 2017 and has been mostly maintained since then. According to the officials of MEN and the officer in charge of continuous training, the number of trainers has been sufficient for the current operation of training at any of three levels of national, regional and local. Concerning the lesson observation, data collection and feedback system to upper level administrations has not been established.

<Technical Aspect>

The teaching capacities of trainers improved by the project have been sustained through the training programs conducted by MEN on a regular basis. Besides, the training for trainers and teachers also has been provided by the projects assisted by the development partners including PAQEED and the “Strengthening Support to Child Protection Through Education (RAP)” project financed by Canada and UNICEF. Although data processing skill for monitoring and evaluation of the trainees’ performance was defined as one of the necessary skills of the trainers at all levels, it has not been sufficiently improved and still be constraints for some trainers due to insufficient training on IT skills. The manuals and guidelines developed by the project have been continuously used in the training provided by MEN and in the projects including PAQEED and PAAME. The lesson observation introduced by the project has been continued at school level.

<Financial Aspect>

Projects assisted by the development partners have been providing financial supports for the training for trainers and teachers. The budget for teachers training including the national and external funds from development partners, thus, has been constantly increasing at all levels of regional, local and cluster levels (Table 1).

<Evaluation Result>

In light of the above, some problems have been observed in terms of policy, institutional and technical aspects of the implementing agency. Therefore, the sustainability of the project effect is fair.

Table 1. Budget for Teachers’ Training

Unit: million FCFA

Year	2016	2017	2018
Regional Training	28	62	99
Local Training	37	82	129
Cluster Training	24	35	49
Principals Training	75	164	315

Source: MEN

FCFA: Franc de la Communauté Financière Africaine

**5 Summary of the Evaluation**

The Project Purpose was achieved by improving the quality of teaching to support learning mathematics, science, and technology through the enhancement of the capacity of trainers and the teachers’ knowledge on subject contents and teaching method. However, the project effects have not sufficiently continued due to unsystematic implementation of the PREMST Training Model including the lesson observation because the institutionalization by the ministerial directive has been delayed. As for sustainability, some problem has been observed in terms of policy, institutional and technical aspects of the implementing agency. As for efficiency, the project cost exceeded the plan. Considering all of the above points, this project is evaluated to be partially satisfactory.

**III. Recommendations & Lessons Learned**

Recommendations for Implementing Agency:

- It is recommended that MEN to negotiate with the on-going projects including PAQEED and PAAME to share their endeavors to strengthen the teaching capacity in the subject of science and technology along with mathematics.
- It is recommended that MEN to further facilitate to utilize the materials and guidelines developed by the project in the projects including PAQEED and PAAME, and keep updating them to cope with the changes of the needs of teachers and students.
- The lesson observation has not been very well rooted and not been carried out by all inspectors even though MOE has made efforts to internalize the project model. Therefore, it is recommended that MEN to issue a memorandum requiring IAs to take an initiative to implement the lesson observation systematically and to establish a feedback system of the observation results from schools to IAs and MEN.

Lessons Learned for JICA:

- While the students’ performance on the subject of mathematics has been improved by the intervention of the project, the one on science and technology has not. Achievement of the overall goal of the project thus has been limited to a partial attainment. Although the interventions by the development partners have been continued after the project, since the partners’ projects have focused on mathematics, even a tracking survey on the performance of science and technology has not been conducted after the project. When the achievement of the overall goal is expected to be challenging, it is suggested to establish collaborative structures with other development partners’ projects during the project period, and share the outputs of the project and promote its utilization. Thus, through the utilization of the outputs by other projects, the achievement of the overall goal and enhancement of the sustainability of the project’s effects could be anticipated. This can be suggested especially in the education sector in African countries where a significant number of development partners deploying various activities.
- In case of this project, due to the delay of the institutionalization of the training model developed by the project, the system formulation for dissemination and internalization of the training model has been delayed. This has eventually hampered the consolidation of

sustainability of the project. Construction of a system structure led by the leadership of the central ministry is indispensable for a project targeting the nationwide dissemination of its effects. And the construction of a system structure takes time for authorization procedures, dissemination activities, and others. Therefore, it is expected that a project targeting the nationwide dissemination of its effects starts a system design, system structuring and other necessary tasks involving the central ministry in charge at an early stage of the project period and complete those preparatory works before the completion of the project.



A teacher using the Teaching Module developed by the project



Group learning introduced by the project