

Evaluation Summary

I. Outline of the Project	
Country: The Federal Republic of Nigeria	Project Title: Project on Strengthening of Mathematics and Science Education in Nigeria Phase 2
Issue/Sector: Basic Education	Cooperation Scheme: Technical Cooperation
Department in Charge: Human Development Department	Total Cost (as of the end of March 2013): approx. 403 million Japanese yen
Period of Cooperation: (R/D) June 1, 2010 – July 20, 2013	Partner Country's Implementing Organization: Federal Ministry of Education (FME)
Related Cooperation: "Project on Strengthening of Mathematics and Science Education in Nigeria" (2006 – 2009)	
1. Background of the Project	
<p>Nigeria launched the universal basic education program in 1999, placing importance on expansion of basic education. As a result, access to education has improved and enrollment in primary schools sharply increased from 17.91 million in 1999 to 20.68 million in 2010¹. However, on the other hand, quality of education was a big issue.</p> <p>Although teacher's skill is a critical element that affects quality of education, most teachers in Nigeria did not have an official teacher's license. Because teacher training courses at colleges and teacher training institutes focused on memorization of textbooks, teachers did not have sufficient teaching planning and teaching skill and experiences in mathematics and science. The Government of Nigeria has recognized the need for enhancing teachers' skill and has provided original classroom teachers' training programs in mathematics and science. However, the training programs have not been not effective in terms of their system and there was a shortage of opportunities for teachers to improve their teaching strategies and knowledge on subjects continually.</p> <p>JICA has provided cooperation of continuous teacher training for primary school teachers in mathematics and science based on the situations. Project on Strengthening of Mathematics and Science Education in Nigeria (SMASE Phase 1) was implemented 3 years from August 2006 to August 2009 in three pilot states; Kaduna, Niger, and Plateau where the proper qualified teacher ratio was low (The Ration of teachers who have proper certificate is 50% in Kaduna, 39% in Niger, 51% in Plateau against 59% in the whole country), aim to bring up core human resources (Trainers). Experience of the Strengthening Mathematics and Science in Secondary Education (SMASSE)² in Kenya has applied for the implementation of SMASE Phase 1, technical cooperation has implemented through effective use of South-South cooperation such as dispatch of Kenyan third country expert. In consequence, capacity of local training trainers to conduct in-service training has improved steadily, local training in pilot states</p>	

¹ EFA Global Monitoring Report 2012

² A technical cooperation project that was launched in 1998 in Kenya. Phase 2 began in 2003, and Phase 3 began in 2009. It aims to enhance education in these subjects by establishing a teacher training system in mathematics and science and spread student-centered teaching through such training. The SMASSE is featured by conceptualization of teaching improvement approach with the keyword, ASEI-PDSI (Activity, Student-centered, Experiment, Improvisation: Plan, Do, See, Improve).

has implemented, and the guidelines for scale up to other remaining states has been officially decided, In pilot states, it was necessary to conduct actual local in-service training for primary school teachers in all the schools and improvement of the guidelines and implementation structure of training based on the concrete feedback through the conduct of the training, Therefore,

Nigerian Government, highly evaluated SMASE phase 1, requested cooperation to Japanese Government as a succeedableProject of SMASE Phase 1 which consists of implementation of local in-service training in pilot states for 70,000 primary school teachers in school level, and extension of National in-service training for 33 states and Federal Capital Territory (FCT) in state level.

2. Project Overview

Through implementation of in-service teacher training, the ability of primary school teachers to conduct student centered lesson in mathematics and science in pilot states and the ability of State Trainers as In Service Training (INSET) providers in primary mathematics and science education in other remaining states are enhanced.

(1) Super Goal

The capability of primary school pupils in mathematics and science education in the country is upgraded.

(2) Overall Goal

Teaching skills of primary school teachers in mathematics and science in the country are upgraded through institutionalized Strengthening Mathematics and Science Education (SMASE) INSET.

(3) Project Purpose

The ability of primary school teachers to conduct student centered lesson in mathematics and science in pilot states and the ability of State Trainers as INSET providers in primary mathematics and science education in other remaining states is enhanced.

(4) Outputs

1. The bodies/units to implement the local INSET for primary school teachers in the pilot states are established.
2. The INSET for primary school teachers is conducted and assessed in pilot states.
3. The bodies/units to implement the INSET at National and State levels are strengthened.
4. The National INSET for State Trainers in other remaining states are conducted and assessed.
5. Supporting system for INSET is strengthened.

(5) Inputs (as of the time of evaluation)

<Japanese side> Total inputs amount: Approx. 403 million yen

Short-term experts: 8

Trainees received: 55

Equipment: 2,585 thousand yen

Local cost: 65,906 thousand yen

<Nigerian side>

Counterpart: 31

Land and facilities: Working space for experts

Local cost: 426,554,231 Naira (approx. 256 million yen)

II. Evaluation Team	
Members of Evaluation Team:	
(1) Team Leader: Mr. Satoru TAKAHASHI, Visiting Senior Advisor, JICA (2) Cooperation Planning: Mr. Takayuki MURAOKA, Basic Education Division II, Basic Education Group, Human Development Department, JICA (3) Evaluation Analysis: Ms. Sawa HASEGAWA, Consultant, Japan Development Service Co., Ltd. (4) Dr. A. A. ADEDIBU (Federal Ministry of Education: FME), (National Coordinating Unit: NCU) (5) Mr. J. C. AGUIYI FME, NCU (6) Mr. Umar IRO (Universal Basic Education Commission: UBEC) (7) Ms. ISHOLA UBEC (8) Mr. Chima EGBUJUO (Nigeria Education Research and Development Council: NERDC) (9) Mr. Musa BADAR (Teachers' Registration Council of Nigeria: TRCN) (10) Mr. Faniran SANJO (National Planning Commission: NPC)	
Period of Evaluation: January 27–February 17, 2013	Type of Evaluation: Terminal Evaluation
III. Results of Evaluation	
1. Progress of the Project	
<p>Most activities indicated in PDM have been implemented, although the National INSET and Local INSET have been implemented behind the schedule for a partial number of trainees compared to the original plan. The progress and achievement level of each Output, Project Purpose, Overall Goal and Super Goal is as follows.</p>	
(1) Achievement of Outputs	
<ul style="list-style-type: none"> - Output 1 has been almost achieved. In the pilot states, the number of establishment of local training centre is a little lower compare to original plan, but sufficient number of zonal implementation committee and zonal coordination unit have been established and necessary number of core teacher participated in activity as trainers. Consequently, the structure of implementing the Local INSET for primary school teachers in the pilot states has been almost established. - Output 2 is partly achieved. Average of training evaluation index achieved more than 3 and the report of implementation of local in-service training has been prepared, local in-service training has not completed all the three cycles. The Local INSET in each pilot state has been implemented behind the schedule which had been modified in mid-term evaluation. It would be difficult for 35,000 primary school teachers to take local INSET by the end of project period due to incertitude of training budget in each pilot state. Output 3 is partly achieved. The structure of implementing the SMASE INSET at the national level has been established, In non-pilot states (34 states), 13 states have established the implementation structure for state level INSET and sensitization of SMASE training would be reinforced to remaining states. - Output 4 is almost achieved, Implementation of national INSET was delayed due to the shortage of budget and late distribution of budget by Nigerian side, however, it has been almost achieved based on the modification to practical number in the mid-term review evaluation. 	

(2) Output 5 is partly achieved. Reinforcement of support system for SMASE training such as publication of newsletter, reflection of SMASE activities/experiences to teacher training policy/guidelines has been progressing. For strengthening training structure, continuous sensitization would be conducted especially the states which had not participated in national INSET

(3) Achievement of Project Purpose

- The Project Purpose is partly achieved.
- Because of the training budget constraint, it would be difficult to achieve the Project Purpose (improvement of teaching ability of all the primary school teacher in pilot states and ability of state trainers in other remaining states) by the end of the Project
- However, the primary school teachers and state trainers who participated to the training are being achieved the criteria fixed by the project.

2. Summary of Evaluation Results

(1) Relevance (relatively high)

- The Project is consistent with the Nigeria's educational development policy that places high value on the improvement of teaching and learning in mathematics and science as the essential means for national development.
- The Project also meets the immediate needs of its targets, i.e. NTs, STs, CTs and primary school teachers who aspire for the improvement in teaching skills.
- The Project is also consistent with the Japan's ODA policy for Nigeria, aiming at the quality improvement of mathematics and science education in Nigeria and the training of 100,000 mathematics and science teachers in Africa.
- The original project design, however, it could be said there has been a problem about the target size of trainees, state government centered design and the scale up to nationwide after completion of a series of training,

(2) Effectiveness (fair)

- It would be difficult to achieve project purpose by the end of project period because the National INSET and Local INSET have been conducted on a limited scale due to budgetary constraints of Nigerian side.
- Despite the limited sample size, the quantitative indicators of the Project Purpose were found to be positive. Furthermore, some positive changes and improvements have been observed in the limited area of pilot states where the Local INSET has been already conducted.

(3) Efficiency (fair)

- While input and activity of project have managed appropriately under difficult situation including lack of budget, national and local INSET have been implemented behind schedule due to inadequate and delayed allocation of funds from the Nigerian side
- Quality of inputs except shortage of amount and timing is almost appropriate, they have been properly managed to produce Outputs.
- The achievement level of Outputs is favorable as of this moment when the remaining project period is five months since the Project's target size was revised at the Mid-term Review based on the reality and

the SBT has been introduced effectively.

(4) Impact (fair)

- It will take considerable time to achieve the Overall Goal and Super Goal in future compared to original expectation, however, achievement is expected because during the Terminal Evaluation interview, positive changes have been observed in the pilot states where the Local INSET has been already conducted. For example, some teachers became so versed in the ASEI-PDSI approach that they have applied it to other subjects beyond mathematics and science. This has aroused pupils' curiosity in learning and then has improved their attendance and retention rates.
- The State INSET was voluntarily conducted in 11 non-pilot states among which two non-pilot states have gone a step further by conducting the Local INSET.
- Many positive change of teachers in pilot states where the local INSET has been already conducted such as conduct of student centered lesson, obtainment of confidence for mathematics and science lesson, overcoming weak topic and improvement of content of lesson plan have been reported by Local Government Education Authority (LGEA).
- Lots of positive change of pupils in pilot states where the local INSET has been already conducted such as positive participation to mathematics/science lesson and speaking own words, increasing interest to the content of the lesson, improvement of attendance rate, and increasing the score of mathematics/science examinations have been reported.

(5) Sustainability (fair)

- Concerning the policy and institutional aspect, the SMASE INSET is expected to be continuously prioritized by the Federal Government. On the other hand, continuous sensitization to concerned people in state level is necessary, especially the country such as Nigeria where the decentralization of government to state authority is advanced because the adoption and conduct of SMASE training influence the intention of state government, SME, SUBEB.
- Concerning the organizational aspect, NCU and Technical Committee (TC) would continue functioning as long as the SMASE INSET is conducted in Nigeria in future. SCU in the pilot states are projected to function even after the Project is over, however, it is important to report the necessity of SMASE training and progress constantly by the member of SCU due to the frequent personnel change of management post of SUBEB.
- Concerning the financial aspect, NTI will receive the regular budget to commence Cycle 2 of the National INSET in 2013. Each SUBEB needs to gain budgets from UBEC as well as from various sources for the solid implementation of the State and Local INSET. Regarding training budget in each state, UBEC prescribes the part of Teacher Professional Development Intervention Fund allocated to SUBEB should be used for implementation of SMASE training, but it is not exploited appropriately due to the difference of recognition against training in each state, In addition to the appropriate use of the fund and the SUBEB expected to secure necessary budget through plural resources of the fund such as state government.
- Concerning the technical aspect, NTs, STs and CTs have had a mastery of the SMASE principals and concepts. Also, most stakeholders are now adept at planning, managing and facilitating the SMASE INSET at the national and local levels.

3. Factors that promoted the realization of effects

(1) Factors concerning Planning

- Nigerian and Japanese side discussed promptly and adopted school based approach flexibly when the conduct of INSET turned out to be difficult to all the primary teachers in three pilot states with original cascade style approach within the project period.
- School based training contributed not only to rapid extension of local training with minimum time and expenses but also increase its effectiveness. This flexible and prompt measure brought about smooth implementation of the project.

(2) Factors concerning Implementation Process

- There are many stakeholders who have been long engaged in the Project since the time of Phase 1. They are up on mutual trust, they are quite familiar with the project objectives, and this has contributed to the flexible implementation of the project activities.
- SMASE INSET itself is interactive, learner-centered and quite eye-opening for the participants who had long believed the one-way lecturing style was the best and only way of conducting classes. This has brought them some changes in mindset, attitude and behavior in the classroom teaching. The guidelines, training materials and M&E instruments developed by the Project are simple and practical, and have given a firm base of implementing the SMASE INSET. The good image of the SMASE INSET was consolidated and this has facilitated the project activities for both Nigerian and Japanese sides.

4. Factors that impeded the realization of effects

(1) Factors concerning Planning

- Necessary training budget have not been secured though most of the training budget should have borne by Nigerian side in project design.
- Two of pilot states, Kaduna and Plateu have been allocated Teacher Professional Development Intervention Fund from UBEC to SUBEB, but the budget was not used for SMASE training due to the lack of recognition to local training in each SUBEB.

(2) Factors concerning Implementation Process

- Some assets of the Project Phase 1 could not be efficiently used in the Phase 2 because of the personnel change of all the national trainers and necessity of revision for more practical content
- The worsening security situation in Nigeria limited the Japanese experts' mobility in the 3 pilot states.

5. Conclusions

Based on the findings of the Terminal Evaluation, it has reached the conclusion that it is difficult to achieve project purpose during the project period. On the other hand, with the tireless efforts of both Nigerian and Japanese sides, the Project is expected to achieve its outputs and purpose in the foreseeable future. Especially, its contribution to building an institutional foundation for promoting the concept and approach of SMASE in Nigeria is highly commendable. The bodies/units to implement the SMASE INSET have been set up fully in the pilot states and partially in the non-pilot states.

Although the National and Local INSET have been implemented behind the schedule for a partial

number of trainees compared to the original plan, the quantitative indicators of the Project Purpose were found to be positive. This will lead to the assumption that it is difficult to achieve the Project Purpose by the end of the Project, but it is expected to be achieved if primary school teachers in the pilot states continuously participate in the SMASE INSET and SBT.

While the Project is on the right track to achieve the Overall Goal and Super Goal through the institutionalized SMASE INSET with a combination of SBT, it will take time to achieve them to the fullest. It is strongly expected for the Nigerian stakeholders to continuously prioritize the SMASE and make efforts for the future development in Nigeria. Based on the result of terminal evaluation, both Nigeria and Japan recommend one year extension of the project.

6. Recommendations

With all things above considered, both sides have recommended the one-year extension of the project period. Recommendations below are categorized into three timeframes: 1) by the end of the original project period (by late July 2013), 2) during the one-year extended project period, and 3) after the one-year extended project period. Especially, the recommendations mentioned in 5.1.1. are strongly encouraged to be fulfilled to move on to the extension of the Project.

(1) By the end of the original project period (by late July 2013)

- Securing 87 million Naira as a Regular 2013 Budget of NTI to Conduct Cycle 2

87 million Naira should soon be approved to conduct Cycle 2. National INSET will commence shortly after the approval of the National Assembly. Cohort 1,2,3,4,5,6,7 of Cycle 2 will be covered by this budget (see Annex 7).

- Conducting Cycle 2 of National INSET

NTI has committed to completing at least Cohort 1 and 2 of Cycle 2 by July 2013. Implementing those two Cohorts during the original period is crucial to execute all the Cohorts of Cycle 2 and commence Cycle 3 during the extended period of the Project.

- Appointing Additional NTs

There are four fulltime NTs. Then, two STs join in conducting the National INSET to cover the manpower shortage of NTs. Securing capable and a sufficient number of NTs is of paramount importance to complete Cycle 2 and initiate Cycle 3 during the extended period.

- Implementing the Local INSET

Having ensured necessary budgets as shown in Annex 7, Niger SUBEB will implement the Local INSET (Cycle 1) for 600 teachers in March 2013, and Kaduna SUBEB will implement the Local INSET (Cycle 2) for 2,300 teachers in March 2013.

- NSC Acting Chairperson to be appointed by Honorable Minister of State for Education

Currently, Honorable Minister of State for Education chairs the National Steering Committee (NSC). However, NSC has not been held regularly though it should have been organized twice a year as stipulated in R/D because of the tight schedule of the Minister. In order for NSC to take place biannually, Permanent Secretary or Director of Technology and Science Education Department can be an acting chairperson to be appointed by the Minister. Substantive issues will be informed to the

Minister at any one given point in time.

- Allocating Expenses for NCU Members' Activities

FME will through its relevant parastatals pay the expenses for NCU members' activities such as sensitization, implementation, monitoring and evaluation.

Note: Upon strong commitments above confirmed, the revised R/D is to be signed between FME and JICA before July 2013 to extend the project period.

(2) During the one-year extended project period

- Conducting Cycle 3 of National INSET

At least Cohort 1 of Cycle 3 of the National INSET should be carried out by the end of the one-year extended period. This commencement of Cycle 3 will be a cornerstone for the continuing implementation of the National and Local INSET after the extended project period.

- Conducting Refresher Training to STs and CTs in Pilot States

Refresher Training of Cycle 3 should be implemented for STs and CTs in 3 pilot states before conducting Local INSET. Kaduna and Niger are planning to start Cycle 3 of the Local INSET from late 2013.

- Modifying Training Materials of Cycle 3

The modification of the training materials of Cycle 3 will be completed by the end of October 2013.

- Completing the SMASE Guideline of Combining Cascaded INSET and SBT

Incorporating good practices yielded through hands-on activities, the SMASE guideline combining cascaded INSET and SBT should be completed around May of 2014.

(3) After the one-year extended project period

- Ensuring Sufficient and Sustainable Budget by Federal and State Governments

Federal and State governments should demonstrate greater ownership of the Project through adequate and sustainable funding. NTI needs to be funded through annual budgetary provision by FME to conduct the National INSET. Also, at the state and local levels, adequate budget should be funded through the UBEC training fund and annual budgetary provision by states to implement the Local INSET.

- Developing and Revising INSET Materials and Guidelines

Materials and Guidelines of INSET should be continuously developed and revised by NTs who possess core expertise of SMASE.

- Conducting Cascaded INSET and SBT Continuously

All the levels of INSET should be conducted continuously. To do so, sufficient budget needs to be secured every year. Trained teachers who participated in the Local INSET should implement SBT properly with the support of Head Teachers. This will accelerate the sharing of the SMASE principles and concepts among all teachers in each school. At the same time, the monitoring system of LGEA (Quality Assurance Officers and Supervisors) should be established for continuing SBT.

- Continuing Sensitizations to All the Levels

Policymakers and implementers (FME, State Ministries of Education, SUBEB, LGEA and other stakeholders) should be continuously and properly sensitized on the SMASE project.

- Integrating SMASE Experiences into INSET Policies or Education Plan

FME will continue to integrate SMASE experiences into its INSET policies or education plan.

- Extending ASEI-PDSI to PRESET and Teacher Upgrading

The Concept of ASEI-PDSI should be extended to the students of teacher training colleges. At the same time, it should be included in the distance education program for the teacher upgrading certificates offered by NTI.

7. Lessons Learned

(1) Careful Project Design in Consideration of Country Characteristics

Nigeria has a federal system with the largest population in Africa. The original project was designed to involve all the 36 states and the Federal Capital Territory (FCT) in the nation. Three pilot states alone had targeted more than 70,000 teachers to be trained through the Local INSET. This plan was too ambitious to be implemented in a timely manner because it required an enormous amount of budgets and logistics. Some originally-set indicators in PDM were scaled down to the feasible level at the time of the Mid-term Review. The subsequent operation, however, has remained highly challenging. In this regard, a technical cooperation project needs to be carefully designed, taking into consideration the features and characteristics of the recipient country.

(2) State government centered project design

In Nigeria where the large population scale and the decentralization of government to state authority is advanced, a top-down approach by FME cannot work well and the adoption of SMASE INSET at the state level depends on the decision of the State Government, SME and SUBEB. Therefore, regarding the extension of training to nationwide, it would be reasonable to proceed with Nigerian initiative involving state government. Accordingly, considering the progress of decentralization and relation between centre and state in project design would increase the feasibility of the project

(3) Extension to nationwide after completion of series of cascade training

As an extension step of SMASE training, it was more effective after the establishment of SMASE training model including guidelines and training materials based on the experience through the completion of local training in pilot states rather than conducting national and local training simultaneously as this project. Consequently, it is important to extend target area efficiently after the completion of series of cascade training than hasty extension to other remained states.

(4) Lack of training budget of FME and insufficient recognition to local training in pilot states

The biggest disincentive of the project is the lack of training budget of Nigerian side. Necessary budget to conduct training is not ensured sufficiently though almost all the expense of the training is designed as the responsibility of Nigerian side. Teacher Professional Development Intervention Fund have been allocated from UBEC to SUBEB in pilot states, while this budget was not exploited to

conduct training due to the difference of recognition of each SUBEB to local training. UBEC prescribed the utilization of a part of Teacher Professional Development Intervention Fund to conduct SMASE training, it is necessary to announce continuously to concerned people about appropriate use of the part of the fund for SMASE training through the opportunity of sensitization of promotion for participation os SMASE trainig.

(5) Flexible, Practical and Innovative Project Implementation

When the Cascaded INSET turned out to be difficult to reach all the teachers in pilot states during the project period, both Nigerian and Japanese sides promptly discussed and flexibly adopted a down-to-earth but innovative approach of SBT that can extend and even enhance the effectiveness of the local INSET with minimum cost and time. Such swift, sensible and decisive actions are indispensable to implement a project encompassing intrinsically unforeseeable elements in technical cooperation with developing countries.

(6) Involvement of PRESET Instructors in INSET to Enhance Project Sustainability

In addition to NTs in NTI, there are a total of 336 STs nationwide of which about 70% are instructors of teacher training colleges. Those STs are not only engaged in INSET, but also in PRESET as their regular work. This means that as long as they teach in college, core knowledge and skills of SMASE will stay in PRESET. This also indicates that the Project has been addressing the quality improvement of PRESET as well, which fosters and sends out new teachers to schools every year. In this sense, the involvement of instructors in teacher training colleges is essential to ensure and enhance the sustainability of a project geared to INSET.