Summary of Terminal Evaluation Results

<table>
<tr><td colspan="3">1. Outline of the Project</td></tr>
<tr><td colspan="2">Country: Republic of Niger</td><td>Project title: Improving the Teaching of Mathematics and Science in Secondary in Niger (Phase II) (SMASSE-NIGER Phase II)" Project</td></tr>
<tr><td colspan="2">Issue/Sector: Basic Education</td><td>Cooperation scheme：Technical Cooperation Project</td></tr>
<tr><td colspan="2">Division in charge:
Basic Education Division II,
Basic Education Group,
Human Development Department</td><td>Total cost (at the time of Terminal Review):
221 million Japanese Yen</td></tr>
<tr><td rowspan="3">Period of Cooperation</td><td rowspan="3">R/D:
2010 .3~2013.9</td><td>Main Counterpart:
Ministry of Middle and Higher Education and Scientific Research</td></tr>
<tr><td>Supporting Organization in Japan: -</td></tr>
<tr><td>Other Related Cooperation: -</td></tr>
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1-1. Background of the Project

In 2006, there are about 470 public secondary education institutions, 6,200 teachers (including 2,262 people science and mathematics teachers) had been taught in Niger. However, that is about 80% of contract teachers, most of which have not received professional education at the Faculty of Education of the teacher training course and university. Also, in secondary education is a mainstream memorization-padded type education of blackboard center which does not take into account the degree of understanding of the student, it is hard to say that high secondary education quality has been carried out. Therefore, aiming to improve the quality of secondary education which is the foundation of human resource development responsible for the future of the Niger, capacity building of core human resources and science and mathematics teachers by In-service teachers training (INSET), have been pointed out as a pressing issue.

Under such circumstances, Government of Niger (hereinafter GoN) requested the technical cooperation to the Government of Japan (hereinafter GoJ) in order to improve the Mathematics and Science Education. In March 2010, “Improving the Teaching of Mathematics and Science in Secondary in Niger (Phase II) (SMASSE-NIGER Phase II)" Project” was initiated with the aim to enhance the teaching capacity of Mathematics and Science teachers in secondary level through strengthening In-Service Education and Training (INSET).

1-2. Project Overview

(1) Overall Goal

The ability of Mathematics and Science of junior high school students is improved.

(2) Project Purpose

The capacities of Mathematics and Science teachers are strengthened through quality INSET.

(3) Outputs

1) The capacities of National Trainers are strengthened.
2) The sturctrure of National Training and Regional Training to implement INSET are established.
3) The supporting system for the INSET Project is strenghtened.

(4) Inputs (as of January 2014)

Japanese side: Total amount of input 216 million yen

Long-term Experts:	A total of 2 persons
Short-term Experts:	A total of 4 persons (Total 5.3 M/M)
Training in Japan:	5 persons
Training and Seminar in Third countries:	22 persons
Provision of equipment	Equivalent to 10,993 Thousand Yen
Local Operational Expenses:	Equivalent to 66,524 Thousand Yen

Ethiopia side:

Counterpart personnel :	23 persons
Local Operational Expenses:	Equivalent to 18,205 Thousand Yen (CFA91,457,543)
Provision of spaces	Project offices and INSET center 9 INSET centers

2. Evaluation Team

Members of Evaluation Team	Mr.Toshio Murata	Leader	Senior Education Advisor, Basic Education Group, Human Development Department, JICA
	Mr. Mizuki Matsuzaki	Cooperation Planning	Deputy Director, Basic Education Division II, Basic Education Group, Human Development Department, JICA
	Mr. Yutaka Yamaguchi	Consultant	Cranberry Inc.
	Ms. Ryoko Kojima	Interpreter	Japan International Cooperation Center

Period of Evaluation	May.26 ~ Jun.14, 2013	**Type of Evaluation**：Terminal Evaluation

3. Result of Evaluation

3-1. Project Performance

(1) Outputs

In a collaborative consensus, the Nigerian and Japanese officials of the Project has made efforts to achieve the desired outputs. The output 1 was achieved through the efforts of Nigerian and Japanese parties. Structure of National and Regional Training were established as intended in output 2. However, the Ministry of Finance could not disburse the budget for 2012; the National and Regional Training programmed therefore have not taken place. Capacity development of principals and roles of SMCs / ES in order to support INSET by the Project activities are achieved as output 3.

(2) Project Purpose

The attitude indicator of teachers reached 2.3 as its target value set 2.0 and indicators of behavior of students towards math and science got 2.0 as the target value was 1.5. The project has led to October 2010 to March 2011, training and upgrading of regional trainings across the country in January and March 2012 with the introduction of new modules. The attitude of the teachers who participated in the training and behavior of students towards mathematics and science have improved, which is why the best indications that a survey conducted in April-May 2012. Based on indicators of ASEI-PDSI, there is a general improvement: among teachers from the perspective of indices: Prepare (P) Make (D), see (S), improved (I) and students from the point view Activity (A) Student (S) Experience (E), Improvisation (I).

(3) Overall Goal

Examination results PEBC improve over the period of the project: 31.4% in 2010, 35.9% in 2011 and 48.2% in 2012 But there is a great disparity between the years. Although the results of all disciplines are taken into

account, it is difficult to analyze those of Mathematics and Sciences. It is therefore impossible to accurately measure the achievement of the Global Objectives. The Project organized two examinations in 2010 and 2011 to measure students' skills in Mathematics, Physics and Chemistry and SVT. The results revealed a problem: deficiency in his ability to prepare learning, which causes great difficulty to examine the learning outcomes and outputs arising in relation to the effectiveness of the training provided to teachers. The investigation on learning outcomes has been scheduled in 2013, but with the non-disbursement of the budget by the Ministry of Finance and lack of time, the survey of learning achievement was not organized.

3-2. Summary of Evaluation Results

(1) Relevance: medium

The project is in compliance with Nigerian policy development, capacity building needs of mathematics and science secondary are great for these reasons the pertience Project is confirmed. Moreover, the transfer of skills in teaching basic cycle II MEN / A / PLN, it remains to clarify points on the institution of the implementation of the training, the relevance is rated average. Relevance of the Project is high in terms of the policies and the needs of the GoE and GoJ. On the other hand, there is the limitation for the strategy of the Project.

1) Consistency with the Nigerian political development

In 2012, the "Letter of Educational Policy for the period 2013-2020" was adopted by the Council of Ministers and its contents were later incorporated in the "Plan for Economic and Social Development (PDES/2012/2015). These policies put frontline lengthening of schooling not only at primary school but also in college and high school. On the other hand, the importance of continuing education to improve the quality of secondary education is put forward; the construction of classrooms and laboratories is a key objective for colleges and high schools. Project without practical influences the transfer of skills in secondary education including CEG MEN / A / PLN.

2) Accordance with the needs of the target group

The number of teachers at the Basic Teachings of Cycles II and Middle has increased considerably. Few of them are graduates of the Ecole Normale Supérieure (ENS), most of them are hired as teachers without an initial while continuous training provided have not been conducted educational training. Therefore, a great need for training for such teachers is felt to strengthen their capacities and skills.

3) ASEI-PDSI approach

ASEI-PDSI is a practical approach to achieve education "student-centered" that contributes to strengthening the capacity of teachers and improving lessons, which is consistent with the policy of MEMS / RS. An efficiencies ASEI-PDSI approach is to give students a taste for science subjects, which is in line with the policy of MEMS / RS for the promotion of mathematics and science.

4) Continuing Education cascade

Project implements ASEI-PDSI approach as a method of cascade training for the benefit of Continuing Education. This method is suitable for the implementation of many sessions of Continuing Education in a relatively short time over the whole of Niger. Niger has excellent inspectors and pedagogical advisors and experienced teachers to train regional trainers needed to implement cascade training. On the other hand, it is undeniable that the cascade method requires a lot of funds for the implementation and management of Continuing Education, which makes it difficult to implement. It is not easy to ensure the quality of training during the return to the regions.

5) Sharing experiences with other African countries such as Kenya

This project was conducted in a spirit of sharing of experiences and collaboration with JICA projects related to the teaching of mathematics and science made including Kenya. JICA has accumulated experience in the field of teaching mathematics and science in various countries in Africa; these experiments were useful for participation in training in a third country and sending experts to a third country Niger. It was the first event in francophone African countries where the education system is different and is a precursor operation since the first phase.

6) Japan's policy of cooperation with Niger

Education is one of the priority areas of cooperation of the Japanese government with Niger. The Project is in helping to improve education in the Operations Program for the Republic of Niger (December 2012) of the Official Development Assistance of Japan. The Project is also in line with the 'quality education' highlighted in

the "Japanese policy on educational cooperation 2011-2015" (September 2010) and aid for basic education in the "Document Operation JICA for the education sector - today and in the future - "(2010) Framework Document JICA on the education Sector.

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(2) Effectiveness: High

The effectiveness of the project is high. The project has strengthened the capacity of teachers of secondary science and mathes, which is proved by the follow-up study conducted by the Project and also the field study conducted by the mission of the final evaluation.

1) Project Goal

Goal of the project is already reached. We can consider that the attitude of teachers and students involved has changed. The attitude of the teachers got 2.3 as the target value is 2.0, about the involvement of students it was noted 2.0 while the target value was 1.5. From the point of view of teachers' attitudes: Prepare (P) Make (D) Evaluate (S), Improving (I) and ASEI (involvement of students) Activity (A) Student (S) Experience (E) Improvisation (I), an improvement was observed. During the site visits during the Final Evaluation, we have seen the positive impact of training on the attitudes of teachers and students involved.

2) Capacity of stakeholders to the project team to perform the training

The ability of Nigerian Team members of this project for the implementation of the training was not only strengthened through the project activities but also has been used effectively for the conduct of activities. Counterparts of the Project are able to perform a series of operations: develop training modules, train national trainers, implement regional training, track the results of the above training, writing reports. The logistics training needs to be improved, but if there is no problem of funds, the Nigerian party is able to perform continuous training.

3) Capacity building of laboratory

Capacity building for laboratory through project activities and Japanese volunteers specialized in mathematics and science has succeeded in raising the quality of training and courses, and contributed to the successful implementation of the Project. In Niger, the laboratory tend to be underestimated and overestimated teachers, the Project has provided opportunities to participate in training of laboratory and design of educational materials, which gave them a better motivation. Some have managed to build their capacity and be able to play a role of trainers in national training programs. It was found that coordination between teachers in math and science and Japanese volunteers sent at the time contributed to the capacity building of laboratory.

4) Collaboration with the SMC / ES

The sensitization workshop organized in 2010 for stakeholders such as principals and representatives of SMC / ES, and training of school leaders have been effective in the implementation of community support for institutions and the teaching of math and science. SMCs / ES are responsible for the purchase of textbooks for math and science and small equipment for practical work, the cost of repairing benches tables and some materials in laboratories Since MEMS / RS and MEN / A / PLN provide no other helper besides the payment of teachers' salaries, the SMC / ES provides funds for the operation of the management of schools. SMCs play an important role in many schools and colleges. It was found a qualitative improvement of the effectiveness of training provided to stakeholders; it is observed in level institutions that have integrated in their action supports the science teaching plans.

5) Delay disbursement of the budget by the Ministry of Finance and failure

The delay in the disbursement of the budget for the year 2012 was certainly an impact on the implementation of project activities; part of the budget of 2012 was disbursed in April 2013, which has achieved the monitoring of teachers, one of Project activities.

(3) Efficiency: High

The project has enhanced the outputs of the Project made in Kenya and improved implementation of training according to the ground realities. So the efficiency of the project is high.

1) Contribution to the achievement of outputs

Most outputs have been achieved. What has not been achieved is due to external factors such as delay in the disbursement of the budget by the Ministry of Finance. The development of educational materials took a little

late, but the initial objective has been achieved. For outcome 2, particularly because of financial problems (external factor) does not depend on the project, the implementation of training was delayed and some scheduled training could not be arranged. For outcome 3, outreach principals and representatives of SMC / ES have been carried out and follow-up was conducted to assess its impact and effectiveness, but it remains a problem that relating to the development guide / manual and institutionalization of Continuing Education.

2) Project in Kenya and its effective use

With the support of SMASE-WECSA (expert third country training in a third country, classroom materials etc..,) To the first phase, the project was able to effectively perform the activities drawing on the experiences of Kenya Project SMASSE. Tools and the Kenyan approach were modified to adopt the Nigerian context.

3) Cooperation with neighboring countries

Training in third countries for counterparts were an effective method for the acquisition of technical and sharing of experiences. Training organized in Kenya and Senegal have notably contributed to capacity building for the implementation of ASEI-PDSI approach in teaching mathematics and science in high school in Niger.

4) Quality Inspectors and Advisors Teaching

The level of quality inspectors, advisors and qualified teachers is high, and they are experienced trainers. This facilitates the transfer of technical knowledge and a factor contributing to the effective implementation of project activities. Continuous Training conducted contributes to strengthening the capacity of regional trainers. Due to budgetary constraints, the number of training performed in the second phase is limited. The National Seminars are useful for building the capacity of regional trainers.

5) Efficient use of existing resources

Lack of infrastructure, school laboratories were used for holding National and Regional Training. It was decided to use existing resources. The Project supports the rehabilitation of laboratories retained come Continuing Education Centres (Birni N'Konni, Maradi and Zinder) and repair of existing buildings. Moreover, the participation of counterparts in training held in Benin and France contributed to the strengthening of their capacities.

6) Coordination and cooperation with JOCVs

Coordination with Japanese volunteers was stopped for safety reasons, but it was useful. Specialists' volunteers in math and science have been assigned to a key college to support laboratory in preparation for practical work and laboratory management.

(4) Impact: Medium

The Project is a propellant that has achieved the training initiative by the Regional Educational Inspectors, study courses, training for newly recruited etc.. Teachers, several positive impacts were observed. However, the price decline due to teacher strikes and deteriorating learning conditions for students constitute impediments to the review of the Global Objective of the Project, the degree of impact is jege means.

1) Achieving Overall goal

External factors that Project can not control are numerous; there was a causal link, but it would be difficult to find an environment to be able to measure accurately in Niger. To improve completion rates of student learning to achieve the Overall Objective, it is necessary: a) institutional support to curb the problem of teacher strikes and financial support for the sustainable implementation of lifelong learning b) the prices are not affected only by teachers' strikes but also boycotts courses by students, c) support the activities of UP for the improvement of quality of courses. In addition, it is essential for teachers to continue to improve the quality of lessons through daily classroom practice in order to improve learning achievements.

2) Continuous training organized by the Regional Educational Inspectors

With the influence by the implementation of continuous training conducted by the Project, the number of continuing education organized by the Regional Educational Inspectorate has increased during the project. These courses take advantage of learning outcomes Math and Science Project; it was found a wave effect of impact and geographical distribution.

3) Implementation of lesson study

In January 2013, counterparts which have learned lessons study during their training in Japan began to run the lesson study for teachers of math and science in Niamey. The study course was an activity-based lessons prototypes (development of lesson ideas, practice, after meeting, improvement, recovery course) organized by the Project in the context of Continuing Education. It is possible that this kind of activity with the introduction of the method of the project may develop in the future.

4) Implementation of Training Continues for other disciplines

Except for math teachers and science training for teachers for subjects like history, geography, French and English etc.. Were organized. The MEMS / RS organized between December 2012 and January 2013 training for teachers of all disciplines at the request of the military academy. Being aware of the importance of continuing education denotes the impact of the Project.

5) Implementation of continuous training for new contract

In October 2012, the first training for the new contract were organized by the MEMS / RS in training centers 3 regions (Niamey, Tahoua and Maradi) and 149 new contractual teachers took part. Among the trainers, there were players of the Project, modules and DVD developed by the Project were used. These courses have been funded from the regular budget of the Ministry and other courses are planned in 2013. Increased teacher training organized with funding from MEMS / RS part, it seems, the repercussions of the actions of the Project ; it contributes to strengthening the capacity of continuous training.

6) Collaboration for teaching math and science at private schools

The Project is working on improving the teaching of math and science private schools through collaboration with teachers and laboratory cooperative. In 2012 and 2013, teachers and laboratory technician in private schools have conducted training on teaching math and science for teachers with the use of DVD developed by the Project as supports.)

Factors impeding the emergence of impacts

1) Teachers' strikes and boycotts of courses by students

Most participants in training courses organized by the Project are contract teachers; strikes and the lack of professional vocation contract due to poor working conditions may be a factor impeding the emergence of impact for the Project.

2) Delay in the construction of classes

Because of the lack of infrastructure such as sheds are Played classrooms. Environmental learning conditions for students in certain public schools are deplorable. In these classes hut, students are sometimes forced to work on the ground. A new construction of colleges with Japanese non-refundable financial assistance is expected to enhance students' learning conditions.

3) Increase in the number of students per class

The fact that the number of students has increased class sizes are increasingly overcrowded, which exacerbates the already precarious working conditions. Adverse environmental conditions in classrooms are a handicap for learning.

4) Acquired weakness of basic school

The study of educational achievements made by the project in 2010 and 2011 revealed the weakness of learning achievement across all disciplines including French and math and science. Depending on the outcome of the study on the competence of calculation performed by the project, half of 6th graders has a low capacity calculation.

(5) Sustainability: Average

The Project team MEMS / RS with a high technical level sufficient capacity for sustainable implementation of training. Moreover, future realization of a Training Continues politically speaking uncertainty, sustainability is rated average.

1) Political sustainability

There is still a shadow how new teachers' training will enroll specifically in the "Sector Programme of Education and Training (2014-2020)", the "quality and relevance of education "belong to three major programs that program. The "Provision of technical equipment and laboratories and scientific equipment" is also cited as a strategy for secondary education. The "Letter of educational policy for the period 2013 - 2020" refers to the importance of Continuing Education. It seems that the political sustainability will be ensured with the various programs developed by the government. Compulsory schooling at Round Base 2 is under discussion; the outcome this discussion will be exercised strong pressure on education and the needs of quality improvement will be crucial.

2) Structural Durability

The MEMS / RS is in charge of schools and CES. MEN / A / PLN plans to organize training for teachers Round Base 2 math and science following the training content of the Project. The two ministries have the same

formation mechanism implemented by the Project. To set up a structure in charge of Continuing Education and its implementation, the project has submitted proposals for restructuring of Continuing Education for its institutionalization at the workshop on 6 and 7 June 2013. Prepositions were discussed and amended by the participants. They lay the foundation for starting development strategies professional capacities of actors in the Niger education system; they also rely on the outputs of the project and training system in place. It is desirable to have a sustainable management of the systematization of training through the implementation of its institutionalization.

3) Technical sustainability

The Project team MEMS / RS has experience of the Project from the first phase and has acquired a high technical level, and capacity to be continuously implementing training for teachers of math and science. National and regional trainers have strengthened their capacity as trainers through training they drive from the first phase and they are familiar with the approach of the Project for the teaching of math and science; they are capable of performing continuous training human resources. In addition, the effective use of audio-visual materials for practical work training and prototype lessons, we hope that the experiences and knowledge of the project will be developed, which will increase the technical sustainability of the Project.

4) Financial sustainability

The disbursement of the budget by the Ministry of Finance for the organization of continuous training is a big problem. The more conscious government hiring of teachers and the development of school infrastructure cares little ongoing training due to the large budget they generate. The Project supports small-scale training organized by the Regional Educational Inspections and implementation studies lessons with relatively inexpensive ways and with this kind of local initiative, the project can continue.

3-3 CONCLUSIONS

The project succeeded in strengthening the capacity of stakeholders and structure Continuing Education for the work put Continuing Education quality in the teaching of mathematics and science sector. With the introduction of the proposed methods of strengthening mathematics and science in secondary education (SMASSE) set up in Kenya after adaptation to the reality of the Nigerian approach ASEI-PDSI and the methods and content of training, the Project team has actively strived to generalize these new processes. According to the follow-up studies, we found that training has changed the consciousness and attitudes towards teachers during and as a result has developed the interest and curiosity of students and encouraged the active participation of students.

The project team has achieved sufficient capacity to develop programs for Continuing Education, the implementation of training and realize monitoring and évalation. By financial constraints all scheduled training were not organized, but the shortfall has been replaced by the Training Continues with the initiative of the IPR and the study being conducted by the UP each institution.

The Project has designed the 64 materials experience with raw materials available in the daily life and practical work has identified sources as documents, electronic workbook and DVD. To this is added audiovisual materials developed with images of prototypes lessons. These materials are used not only for training cascade method large scale but also for training small-scale levels and regions cmmunes. Project conducted awareness workshops for school leaders and representatives of SMCs to encourage understanding of the Project and implementation of educational activities in contributing to the development of educational quality.

For the sustainability of the Project, it is necessary not only continuity of government financial arrangements, but queei the realization of "restructuring proposals of Continuing Education for its institutionalization" presented at the workshop to present the outputs of the Project . Moreover, to achieve the Overall Objective - improving the skills of students, the country would have to overcome obstacles such as lower business school days and the degradation of working conditions by increasing the number of students.

3-4 RECOMMENDATIONS

In view of the outputs of the project it is desirable that applied to other disciplines training method and teaching technique introduced by the Project;

Continuing education with the waterfall method introduced and implemented by the Project requires a lot of money, but it can spread in such a short time and technical knowledge required. According to the study of

inventory behavior, we must first identify the subjects and chapters that pose difficulties for teachers; then proceed with the development of a national curriculum for training disciplines in accordance with the needs of teachers; it helps equip to improve classroom. It is desirable to apply the experience of the Project to other disciplines to develop quality in general education at secondary

1) To Establish a department in charge of the training that will value effectively Human resources trained by the Project;

The first phase of SMASSE-Niger started in 2006 and over the past 7 years, all teachers of mathematics and science have benefited from the training. Seven (7) Counterparts and 16 national trainers for training have developed teaching materials on the ASEI-PDSI method; they also training sessions and followed classroom conduit. These experiences have greatly enhanced their ability to conduct disciplinary modules. They become a key staff in improving courses in each discipline. The development of quality education is recognized and discussed as an important policy option. All leaves appear there will be a department in charge of management training continues to be led by the nuclei of trainers are our stakeholders at the MEMS / RS.

2) To improve the quality of teaching by the expansion and promotion of the use of developed educational materials.

The Project has developed a series of training materials: 64 teaching materials, 6 videos of prototype lessons, manual testing and training modules disciplines. These materials whose content has been adapted to the Nigerian reality; the materials tested during different can be used for training discipline for teachers of primary teachers in math and science for the training and self-training for all teachers. Achieving improvement courses is possible with the efficient use of materials.

3) To systematize From teacher training for the sustainable implementation of training of teachers.

It has been found from experience that the Project training reinforces the interest and curiosity, enhances knowledge and technical changes will and attitude contributes to the improvement of the course. Faced with the current situation where people hired as teachers without completing teacher training, it is necessary to establish an effective system of training, as many contract teachers have daily difficulties in preparing and implementing their lessons ; service training are therefore essential to learn the knowledge and skills necessary for teaching transmit knowledge to learners. For setting structural and sustainable implementation of the training, the systematization of training is required and formal validation of the "directive to institutionalize continuing education" proposed by Counterparts Project is expected.

4) To reflect the achievements of the project in the action of MEMS / RS plan for achieving policy related to improving the quality of education.

The educational policy of Niger recognizes the importance of developing the quality of education. The MEMS / RS has a high regard for the Project as "advanced device for developing quality education" and wants to develop a draft strategy and effective lessons learned from the Project Plan. To meet the expectations of the Ministry, the project should actively provide information and give appropriate advice before the end of the Project.

3-5 LESSONS LEARNED

1) Knowledge and teaching techniques are understandable only through classroom practice and help strengthen the real capacity of educators.
2) Continuous training and monitoring can ingeniously change the attitude of teachers in a short time and enhance the development of their specialty.
3) Advice and daily support of the headteacher teachers contribute greatly to the improvement and development of the course learning outcomes.
4) Planning and evaluation of an educational project are key to improving the efficiency and effectiveness of the Project.
5) When several specialists work together long, a true esprit de corps and team forms.