

Appendix I

Finding Report of Mid-term Review Study on The Strengthening of Mathematics and Science Education (SMASE) Project (Kenyan Component)

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Abbreviations

ASAL	Arid and Semi Arid Land
ASEI- PDSI	Activity, Student-centered, Experiment and Improvisation- Plan, Do, See and Improve
BOG	Board of Governors
CEMASTEА	Centre for Mathematics, Science and Technology Education in Africa
DAC	Development Assistance Committee
DEO	District Education Officer
DFID	Department for International Development
DOU	Dean of Curriculum
DPC	District Planning Committee
DQASO	District Quality Assurance and Standards Officer
DSSHA	District Secondary Schools Heads' Association
ECD	Early Childhood Development
EMIS	Education Management Information System
FDSE	Free Day Secondary Education
FPE	Free Primary Education
FTI	Fast Track Initiative
GOJ	Government of Japan
GOK	Government of Kenya
ICT	Information and Communication Technology
INSET	In-service Education and Training
JCC	Joint Coordinating Committee
JICA	Japan International Cooperation Agency
KCPE	Kenya Certificate of Primary Education
KCSE	Kenya Certificate of Secondary Education
KEPSHA	Kenya Primary School Heads Association
KESI	Kenya Education Staff Institute
KESSHA	Kenya Secondary School Heads Association
KESSP	Kenya Education Sector Support Programme
KIE	Kenya Institute of Education
KNEC	Kenya National Examinations Council
KNUT	Kenya National Union of Teachers
KUPPET	Kenya Union of Post Primary Education Teachers
M&E	Monitoring and Evaluation
M/M	Minutes of Meeting

M/S	Mathematics and Science
MDGs	Millennium Development Goals
MOE	Ministry of Education
MOU	Minutes of Understanding
NIIC	National ICT Innovation and Integration Centre
NPC	National Planning Committee
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
PDM	Project Design Matrix
PO	Plan of Operations
PTTC	Primary Teacher Training College
QASO	Quality Assurance and Standards Officer
R&D	Research and Development
R/D	Record of Discussions
SAGA	Semi Autonomous Government Agency
SMASE	Strengthening of Mathematics and Science Education
SMASE-WECSA	Strengthening of Mathematics and Science Education in Western, Eastern, Central and Southern Africa
SMASSE	Strengthening of Mathematics and Science in Secondary Education
SNE	Special Needs Education
SPIAS	SMASSE Project Impact Assessment Survey
TAC	Teacher Advisory Centre
TCTP	Third Country Training Programme
TICAD	Tokyo International Conference on African Development
TPC	Teachers Proficiency Course
TSC	Teachers Service Commission
UNICEF	United Nations Children's Fund
UON KSC	University of Nairobi, Kenya Science Campus
ZQASO	Zone Quality Assurance and Standards Officer

1. Introduction

1-1. Background of Project and Objectives of Mid-term Review

The Government of Kenya (GOK) introduced Free Primary Education (FPE) in 2003 and Free Day Secondary Education (FDSE) in 2008, which have rapidly expanded access to education in Kenya. With the effort of policy implementation by the GOK, the primary school enrolment raised from 68.8% (1999) to 91.4% (2010) and the secondary enrolment raised from 13.7% (1999) to 32.6% (2010) (MOE, EMIS). However, the quality of education, particularly the learning achievement in mathematics and science, faces numerous challenges.

The Kenya Education Sector Support Programme (KESSP 2005-2010) identifies several challenges leading to low academic performance, such as low level in “textbook-pupil/student ratio” and “teaching skills and teacher’s ability to understand subject matters.” Kenya’s national long-term development vision (Vision 2030) aims to transform the country, by 2030, into an industrialized nation and indicates raising the quality of education and research as one of its foundations for sustainable development of economic growth in Kenya.

To improve the quality of education, the GOK had requested the Government of Japan (GOJ) to provide a series of technical cooperation to implement the “Strengthening of Mathematics and Science in Secondary Education (SMASSE) Project (hereinafter referred to as “SMASSE”)” and “SMASSE Phase 2,” which aimed to promote in-service education and training (INSET) for mathematics and science teachers. Through these efforts, a system of INSET had been established and the achievements of the Project were highly valued in terms of the relevance and sustainability during the period of final evaluation of SMASSE Phase 2.

The successful results of SMASSE project in Kenya led to 34 African countries to unite under a common goal to solve the current challenges being faced in mathematics and science education at the basic education level and organise the “Strengthening of Mathematics and Science Education in Western, Eastern, Central and Southern Africa (SMASSE-WECSA) Association.”

The activities of SMASSE-WECSA, such as SMASSE-WECSA regional conferences and the Third Country Training Programme (TCTP), contributed in the promotion of mathematics and science education and establishment of the INSET system in SMASSE-WECSA member countries in Africa.

The achievements in mathematics and science education at the secondary education level and the

positive influence on other countries in Africa, through SMASSE and SMASSE Phase 2, led the GOK to request further technical cooperation with the GOJ in order to implement the primary INSET in Kenya and strengthen the SMASE-WECSA network in Africa.

Thus, Japan International Cooperation Agency (JICA) and the Ministry of Education (MOE) of Kenya, through the Centre for Mathematics, Science and Technology Education in Africa (CEMASTEA), started the five-year-project called “Strengthening of Mathematics and Science Education (SMASE)” in January 2009, which is expected to be completed in December 2013. The activities of the Project are composed of the following two components: 1) Kenyan Component targeting Kenyan education and 2) SMASE-WECSA Component targeting SMASE-WECSA member countries. (Project Design Matrixes (PDMs) are attached as ANNEX 1 and ANNEX 2.)

The Mid-term Review Study of the SMASE Project is undertaken jointly by the Japanese Team and MOE officials in order to analyse the achievements and results of the Project. The main objective of the review is to clarify the issues and measures to be taken for the further improvement of the Project for the remaining period, and the Kenyan and Japanese sides will jointly compile the joint evaluation report.

1-2. Schedule of the Review Study

Kenyan Component: 17 Sep 2011 - 16 Oct 2011 (Kenya)

Detail schedule as to activities realized in Kenyan Component is shown in ANNEX 3.

1-3. Criteria of Evaluation

Table 2 shows the five evaluation criteria established by the Development Assistance Committee (DAC), Organization for Economic Co-operation and Development (OECD), which are to be applied in the Mid-term Review Study.

Table 1: Five Evaluation Criteria

Criterion	Explanation
Relevance	A criterion for considering the validity and necessity of a project regarding: whether the expected effects of a project (or project purpose and overall goal) meet with the needs of target beneficiaries; whether a project intervention is appropriate as a solution for problems concerned; whether the contents of a project is consistent with policies; whether project strategies and approaches are relevant, and; whether a project is justified to be implemented with public funds of ODA.
Effectiveness	A criterion for considering whether the implementation of project has benefited (or will benefit) the intended beneficiaries or the target society.

Efficiency	A criterion for considering how economic resource/inputs are converted to results. The main focus is on the relationship between project cost and effects.
Impact	A criterion for considering the effects of the project with an eye on the longer term effects including direct or indirect, positive or negative, intended or unintended.
Sustainability	A criterion for considering whether produced effects continue after the termination of the assistance.

Source: JICA (2004) "JICA Guideline for Project Evaluation." p. 21.

1-4. Review Process

1-4-1. Kenyan Component

- 1) In accordance with the Records of Discussions (R/D) with the GOK, the results of inputs and activities and the achievement of the Project Purpose and Outputs was assessed against the initial PDM and Plan of Operations (PO).
- 2) The overall achievements the Project was evaluated according to the DAC's five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact and Sustainability).

1-4-2. WECSA Component

- 1) In accordance with the R/D with the GOK, the results of inputs and activities, and the achievement of the Project Purpose and Outputs will be assessed against the initial PDM and PO.
- 2) The overall achievements of the Project will be evaluated according to the DAC's five evaluation criteria. Note: Only appropriate items of five criteria will be evaluated for the Mid-term Review of WECSA Component.

1-4-3. Kenyan and WECSA Components

- 1) Based on the results of review of both Kenyan and WECSA Components, the Mid-term Review Team will discuss issues to be addressed and the plans of project activities implemented by the end of the project period, and also consult with Kenyan side (MOE and CEMASTEVA) with regard to suggestions and recommendations for the next two years.
- 2) The Mid-term Review Team will summarize the results of review and discussions in the Minutes of Meeting (M/M). The mid-term evaluation reports (both Kenyan and WECSA Components) will be attached to the M/M.
- 3) Based on the results of the research, the mid-term review team will discuss the necessity of revising the initial project plan with Kenyan side.

1-5. Review Methods

- 1) Literature Review (SMASE, SMASSE and SMASSE Phase 2 documents)
- 2) Analysis of SMASE Project Monitoring and Evaluation (M&E) reports submitted by the SMASE project and other existing documents
- 3) Questionnaire survey to CEMASTEAs counterparts, teachers and district management personnel
- 4) Interviews with Kenyan stakeholders (major interviewees are shown in ANNEX 4)

1-6. Limitations of the Review Study (Kenyan Component)

The Review Study in Kenyan Component had the following limitations:

1) Lack of Necessary Information and Data (See ANNEX 5)

Due to various reasons such as delay in the submission of reports from the district education offices and missing information such as the standard deviation of data sets in the reports of CEMASTEAs/SMASE Project, the Mid-term Review Study could not realize a comprehensive analysis on this report.

2) Limit of Samples

Because of the time constraints, the questionnaire survey and interviews were conducted to only a small size of population in three districts, namely Machakos, Naivasha and Keiyo South, selected by the Project side. Therefore, it is difficult to generalize the result for a larger group. The sample size for the questionnaire survey includes 27 CEMASTEAs counterparts (See ANNEX 6), 37 district management personnel at the primary level and 24 district management personnel at the secondary (See ANNEX 7), 22 primary teachers and 25 secondary teachers (See ANNEX 8), and four Primary Teacher Training College (PTTC) lecturers (See ANNEX 9).

3) Modification of Monitoring and Evaluation Tools for the Project Purpose

The tools used for the monitoring and evaluation activities in the Project were different from those that were supposed to be used in the original plan, i.e., PDM. Hence, there is a huge limitation in the evaluation of the progress of achievement of the Project.

2. Achievement of the Project (See Details in ANNEX 10)

2-1. Result of Inputs

2-1-1. Inputs by the Kenyan Side

1) Buildings, Offices and Other Facilities (See ANNEX 10-1)

Buildings, offices and other facilities were provided for the project. However, there is an inconvenience of using the University of Nairobi, Kenya Science Campus (UON KSC) office due to insufficient office space for Experts and storages of training materials. The part of the office space was spared to the National ICT Innovation and Integration Centre (NIIC), MOE. The relationship between CEMASTEА and NIIC is not yet clear.

2) Counterpart Personnel

At the national level, the Permanent Secretary, the Education Secretary and staff of the Directorate of Field and Other Services participate in the project activities (See ANNEX 10-2). In the beginning of this phase of the Project, the Directorate of Primary Education was in charge of the Project, but after the promulgation of the new Constitution in August 2010, it was transferred to this newly created directorate in the MOE.

The number of CEMASTEА administration staff is three and academic staff is 45, although the expected number of staff is 60 as approved by the Directorate of Personnel Management. The vacancy should have been filled by the Teachers Service Commission (TSC), but it has not been realized due to the following possible reasons: 1) shortage of teachers in the country and 2) CEMASTEА's possible transformation to a Semi Autonomous Government Agency (SAGA) status in the near future, which will not require TSC to supplement CEMASTEА personnel. Among the academic staff, nine belong to the Biology Department, 12 to Chemistry, ten to Mathematics, 11 to Physics, one to Research and Development (R&D) and two to ICT. Simultaneously, every academic staff, other than the newly posted single staff, is assigned to the five committees, i.e., ten to the primary committee, nine to secondary, nine to WECSA, five to R&D, and 11 to ICT (See ANNEX 10-3). Among the ten academic staff in the primary committee, only four have background in primary teachers' training background, which is not sufficient enough to develop and control primary-related activities. (CEMASTEА has two administration personnel, that is, Director and Deputy Director, and one academic staff that have primary teachers' training background but are not at the primary committee.) In addition, 24 non-academic staffs are working at CEMASTEА (as of 1 October 2011), of which the salaries of seven staff are covered by JICA (See ANNEX 10-4).

At the regional level, 20 PTTC principals, 21 Dean of Curriculum, 98 mathematics and 154 science regional trainers participated in the Project, based on the number of personnel who attended National INSET and workshop for PTTC (See ANNEX 10-5).

In order to implement the primary INSET, 285 District Education Officers (DEOs) and 285 District Quality Assurance and Standards Officers (DQASOs) participated in the Project at the district level according to the number of district education offices as of 1 October 2011. Moreover, 4,164 Cluster trainers in 2011, 897 Teacher Advisory Centre (TAC) Tutors together with other personnel in 2010 participated in the Project at the cluster level, based on the number of participants who attended in the Regional INSET and workshop (See ANNEX 10-6).

For the purpose of implementing the secondary INSET, the District Planning Committees (DPCs), established during Phases 1 and 2, are working. There are 76 DPCs, 108 district centres and 488 related personnel. Further information is shown in ANNEX 10-7.

3) Expenses (See ANNEX 10-8)

According to available data, the CEMASTEА recurrent expenditure spent on Project activities in the Kenyan fiscal years from 2008/09 to 2010/2011 (three years) was Ksh. 305,352,626.90. This was based on the report submitted to the CEMASTEА Board of Governors (BOG). The amount collected for the SMASSE Fund by the DPCs, on the other hand, was estimated to be Ksh. 918,269,200.00, based on the number of students.

2-1-2. Inputs from the Japanese Side

1) Expert (See ANNEX 10-9)

JICA dispatched five long-term experts and four short-term experts.

2) Study Mission (See ANNEX 10-10)

JICA dispatched five study missions.

3) Training (See ANNEX 10-11)

The total number of trainees was 72, of which 60 persons were trained in Japan (27 in country-focused and 33 in general training) and 12 persons were trained in Malaysia.

4) Training Materials and Equipment (See ANNEX 10-12)

The total amount spent on procurement of materials and equipment was Ksh. 93,860,829.03. The procurement included those for PCs, software, stationeries, reference books, one vehicle (1,500cc) to CEMASTEА, projectors to PTTC and training materials to 1,052 TAC centres.

5) Expenses (See ANNEX 10-13)

The total amount of JICA's operational cost was Ksh. 151,096,219.60, of which Ksh. 42,539,960.66 was allocated for the activities in Kenya. The remaining (Ksh. 108,556,258.94) was spent for WECSA activities.

2-2. Progress of Activities (See Table 3)

Overall, most of the planned activities have been implemented according to the original PO, except activities related to Output 4 (secondary principals' workshop) and Output 5 (Role of CEMASTEА as a resource centre for mathematics and science education is strengthened).

The actual implementation of activities related to Output 4 was different from the original plan. According to the original plan, the Project was expected to conduct sensitization workshops for all secondary principals in 2010 and 2011 through a cascade mode. However, the development of the workshop contents was delayed for around one year and the Project had changed the modality of workshop to a direct mode without approval by JCC to amend the PDM and PO. Regarding Output 5, no significant activities have been implemented so far in order to enhance the function of CEMASTEА as a resource centre.

Table 3 shows progress of major activities from 1 January 2009 to 31 July 2011.

2-3. Achievement of Outputs

1) Output 1: A system of National INET for Regional Trainers is established at CEMASTEА.

Output 1 is likely to be achieved considering progress up to the present as shown below.

(a) 4 cycles of training materials and programs for the National INSET for the primary education are developed.

Two training materials and programs for National INSET for 2010 and 2011 were developed as shown in Table 4. It is planned to develop another two sets for 2012 and 2013 training. The material development has been implemented according to the original plan. However, delays in the development of the materials sometimes caused difficulties on the part of non-academic personnel to print them.

Table 3: Training Manuals and Programs Developed for National INSET

	Title
1	National INSET manual (write-up) 2010
2	National INSET manual (write-up) 2011

(b) Over 250 Regional Trainers are trained at CEMASTEА.

Table 5 shows the updated number of Regional Trainers trained at CEMASTEА. According to Japanese Experts, most of the participants were attending consistently. The training conducted in 2009 was considered as part of the activities in Phase 2.

Table 4: Regional Trainers Trained at CEMASTEА

	Date	Venue	Theme	No. of trainees	
1	2009/03/22-2009/04/03	CEMASTEА	Actualization of ASEI-PDSI in the classroom	Phase 2 activities	
2	2009/04/05-2009/04/18	CEMASTEА			
3	2009/04/19-2009/05/02	CEMASTEА			
4	2010/02/14-2010/02/27	CEMASTEА	Enhancing quality in teaching and learning Mathematics and Science	86	283
5	2010/02/28-2010/03/13	CEMASTEА		76	
6	2010/03/14-2010/03/27	CEMASTEА		121	
7	2011/02/13-2011/02/26	CEMASTEА	Planning activities for effective teaching and learning	82	271
8	2011/02/27-2011/03/12	CEMASTEА		73	
9	2011/03/13-2011/03/26	CEMASTEА		116	

Source: SMASE Project. (2011). "Information for Mid-term Evaluation 2011." Table 2.1, 2.13.

(c) National INSET for the primary education at CEMASTEА obtain mean of over 3 on the scale of 0 to 4 in the Quality of INSET Assessment Index.

As shown in Table 6, the National INSET attained a mean of 3.3 in mathematics and 3.4 in science

in the Quality of INSET Assessment Index in 2011. According to the project report, the scale used for this indicator was 1-5, in which the ratings correspond to the following: 1) useful to a very little extent; 2) useful to a little extent; 3) useful to a satisfactory extent; 4) useful to a great extent, and; 5) useful to a very great extent. Converting the actual scale (1-5) to the original scale (0-4), it can be said that the target figure was not yet achieved.

Table 5: Quality of INSET Assessment Index of the National INSET

		Target figure	2010	2011
Session evaluation (Project figure: scale 1-5)	Mathematics	-	2.9	3.3
	Science		3.3	3.4
Converted figure to PDM scale (0-4)	Mathematics	3.0	1.9	2.3
	Science		2.3	2.4

Source: SMASE Project. (2011). "Information for Mid-term Evaluation 2011." Table 2.17, 2.18. Project rating scale: 1-5.

2) Output 2:

Output 2 is likely to be achieved considering the progress up to the present as shown below.

(a) Regional INSET for Cluster Trainer at PTTCs is carried out four times.

Two Regional INSETs were carried out for Cluster Trainers in 2010 and 2011 at PTTCs. Additional two trainings are planned to be conducted in 2012 and 2013. This activity has been implemented according to the original plan.

(b) At least 5,600 Cluster Trainers are trained.

The target figure is 5,600 Cluster Trainers. The target figure was calculated based on the trainers to expected trainees' ratio. The actual numbers of Cluster Trainers trained at the regional INSET were 4,420 in 2010 and 4,164 in 2011. However, in the actual training at the cluster level in 2010, equivalent to 6,384 Cluster Trainers conducted training since some participated twice.

(c) Over 1,000 TAC Tutors and 8 provincial, 140 district and 1,000 Zone QASOs are trained.

Some 1,113 and 897 participants in 2009 and 2010, respectively, were trained at the regional workshop, whereas the target figure is 2,358 according to the Project Document. The "Memorandum to Joint Coordinating Committee" on 26 May 2011 states that "The shortfall in the number of TAC Tutors/Zone QASOs (ZQASOs) could be attributed to the lack of budget provisions for INSET in 2009/2010 and the doubling of roles (of TAC Tutor and ZQASO)". According to the CEMASTEAs counterparts, the shortfall in 2010 was caused by the inappropriate timing of the training, which was held during the last week of November. This was a period of the marking of national examination and universities' programmes. There is no information about the number of participants by

designation.

(d) Regional Trainers obtain mean of over 2.5 on the scale of 0 to 4 in the overall assessment of Capacity Building Index at the Regional INSET at PTTCs.

The Regional Trainers obtained a mean of 3.5 in 2010 and 3.4 in 2011 in the overall assessment of Capacity Building Index as shown in Table 7. According to the report, the scale used for this indicator was 1-5. Therefore, converting the actual scale (1-5) to the original scale (0-4), it can be said that the target figure was achieved in 2010, but was not achieved in 2011.

Table 6: Capacity Building Index at the Regional INSET

		Target figure	2010	2011
Project figure (Scale: 1-5)	Quality of INSET session	-	3.5	3.4
	Quality of session aspects	-	3.5	3.5
	Quality of facilitation	-	3.4	3.4
	Overall	-	3.5	3.4
Converted figure to PDM scale (0-4)	Quality of INSET session	-	2.5	2.4
	Quality of session aspects	-	2.5	2.5
	Quality of facilitation	-	2.4	2.4
	Overall	2.5	2.5	2.4

Source: SMASE Project. (2011). "Information for Mid-term Evaluation 2011." Table 3.6.
Project scale: 1-5.

(e) Regional INSET at PTTCs obtain mean of over 2.5 on the scale of 0 to 4 in the Quality of INSET Assessment Index.

The Regional INSET at PTTCs obtained a mean of 3.1 in 2010 and 3.5 in 2011 in the Quality of INSET Assessment Index as shown in Table 8. According to the report, the scale used for this indicator was 1-5. Converting the actual scale (1-5) to the original scale (0-4), it can be said that the target figure was not achieved in 2010, but was achieved in 2011.

Table 7: Quality of INSET Assessment Index

		Target figure	2010	2011
Project figure (Scale: 1-5)	Quality of INSET management by Regional Center	-	3.1	3.5
	Quality of INSET management (quality aspects)	-	3.1	3.5
	Overall	-	3.1	3.5
Converted figure to PDM scale (0-4)	Quality of INSET management by Regional Center	-	2.1	2.5
	Quality of INSET management (quality aspects)	-	2.1	2.5
	Overall	2.5	2.1	2.5

Source: SMASE Project. (2011). "Information for Mid-term Evaluation 2011." Table 3.6.
Project figure: 1-5.

3) Output 3:

Output 3 is likely to be achieved considering the progress up to the present as shown below.

(a) A guideline/manual on management of Mathematics and Science INSET for primary school teacher is developed.

The guideline on the management of mathematics and science INSET for primary school teachers is in the process of being developed. The first draft was developed during the DEO workshop held in July 2010 and compiled by the CEMASTEAs primary committee, but it has not yet been completed. CEMASTEAs has a plan to consolidate it with its secondary handbook in the future.

(b) At least 60,000 primary school teachers drawn from every cluster in the country participate in Cluster INSET.

The target figure was 60,000, but the actual number of participants was 55,393 in 2010. The shortfall could be attributed partly to the 12 districts, mostly in the arid and semi-arid land (ASAL) region, where INSET was not conducted. This was because distances between schools hinder non-residential INSET, and the funds for Cluster INSET did not cater for residential training according to the "Memorandum to the JCC Meeting". Another reason was that there were schools with less than three teachers (the Project invited three teachers from each school).

4) Output 4:

A certain progress was observed in the activities, such as developing workshop content for the introduction of lesson study and sensitizing secondary principals through workshops. However, the verifiable indicators for Output 4 set in the PDM are not adequate to evaluate the narrative summary, which states that "Secondary mathematics and science teachers' ASEI/PDSI practices in classroom are enhanced". Therefore, it is not possible to evaluate its achievement. Progress, according to the actual indicators, is described below for reference.

(a) INSET and workshop contents for introducing lesson study are developed.

INSET and workshop contents for the introduction of lesson study were developed and compiled as "Lesson Study Content for District INSET Manual (write-ups)" and "Principal Workshop 2010 Manual". More contents are still being developed for future INSETs and workshops.

(b) 360 principals are trained at National workshop.

Instead of the planned two-tier cascade in the PDM, CEMASTEAs staff has been directly conducting workshops in regions according to the discussion with DEOs during the 2010 DEOs workshop. Thus, National workshop was not conducted.

(c) Over 6,000 Principals are trained at District workshop.

According to the "SMASE Project Information for Mid-term Evaluation 2011", the actual number of principals trained was 3,983 as of 31 July 2011, and the coverage was 63% considering both target numbers at the national (360) and district workshops (6,000) as seen in Table 9. The activity is, at the moment, being implemented by CEMASTEAs staff to finalize the first round. According to CEMASTEAs counterparts, the reasons for modality change were due to difficulties to cascade the workshop as follows: 1) it was not considered appropriate to "cascade" trainings from a principal to other principals because of their seniority, status, accumulated experiences, etc., 2) principals complained about facilitators' insufficient knowledge and experiences in the previous workshops, and 3) principals were, in general, too busy to prepare and carry out the next-tier workshop.

Table 8: Principals Trained at the District Workshop

	Target	2010/2011	%
Principals trained at national workshop	360	0	-
Principals trained at district workshop	6,000	3,983	-
Total	6,360	3,983	62.6

Source: SMASE Project. (2011). "Information for Mid-term Evaluation 2011." Table 5.1.

5) Output 5:

Output 5 has not been achieved up to the present according to the evaluation based on the indicators set in the PDM. While verifiable indicators of PDM related to Output 5 do not capture what were expected to do as a resource centre, the extent of achievement of each indicator is shown below.

(a) At least 8 newsletters are published and distributed.

There were no newsletters published and distributed. The reasons of the delay were the following: 1) the person in charge was transferred to other section, and the task was not taken over properly by his/her successor, and 2) there was no written agreement on who would be responsible for the expenses, i.e., Kenyan side or Japanese side.

(b) At least 2 titles on ASEI/PDSI practices are published and distributed.

There were no titles on ASEI/PDSI practices that were published and distributed. According to CEMASTEAs counterparts, it seemed too early to collect good practices at primary schools because primary teachers had not sufficiently accumulated their ASEI/PDSI experiences yet. It was planned to start collecting practices from 2012.

2-4. Achievement of Project Purpose

1) Primary Level

A certain progress between baseline the data and data of 2011 survey is observed. However, it is difficult to establish whether the Project Purpose is to be achieved, due to the following reasons: 1) inconsistency of monitoring items between the two surveys, 2) the unavailability of raw data of surveys conducted by CEMASTEА, and 3) unverified validity of evaluation tools.

(a) Lesson Innovation Index (target figure: 3.0)

The monitoring tools were developed by the primary committee members. However, the Mid-term Review Team did not analyse the data because of the change of monitoring items in 2011. Moreover, it is necessary to review the validity of evaluation tool and target figure, because the target figure was already achieved at the baseline survey in 2009 as shown in Table 10.

Table 9: Lesson Innovation Index (Primary Level)

		Target	2009	2011
Lesson Innovation Index	Mathematics	-	3.17	3.35
	Science	-	3.28	3.23
	Overall	3.00	3.22	3.29

Source: SMASE Project. (2011). "Information for Mid-term Evaluation 2011." p. 7.

2009 data: Mathematics N=111, Science N=82, Overall N=193.

2011 data: Mathematics N=97, Science N=91, Overall N=188.

Project rating scale: 0-4.

(b) ASEI/PDSI Check List (Target Figure: 2.0)

(c) Lesson Observation Index (Target Figure: 2.0)

The Project decided to combine these two indicators of ASEI/PDSI Check List and Lesson Observation Index due to the progress of student-centered lessons in the class. It is necessary to analyse the validity and target figure among the concerned parties. The figures in Table 11 show significant improvement between 2009 and 2011, but cannot be analysed statistically due to lack of information, i.e., standard deviation or a set of original data.

Table 10: Lesson Observation Index (Primary Level)

	Target	2009	2011
Lesson Observation Index	2.00	1.54	1.98

Source: SMASE Project. (2011). "Information for Mid-term Evaluation 2011." p. 9.

2009 data: N=202.

2011 data: N=126.

Project rating scale: 0-4.

(d) Student Participation Index (Target Figure: 2.5)

The figures in Table 12 show significant improvement in student participation in the class. However,

it is necessary to review the validity of the evaluation tool and target figure, since the target figure was already achieved at the baseline survey in 2009, converting the scale from 0-2 to 0-4 as established in the original plan.

Table 11: Student Participation Index (Primary Level)

		Target figure	2009	2011
Session evaluation (Project figure: scale 0-2)	Pupils Participation Index	-	1.33	1.5
Converted figure to PDM scale (0-4)		2.5	2.66	3.0

Source: SMASE Project. (2011). "Information for Mid-term Evaluation 2011." p. 9.

2009 data: N=2,302.

2011 data: N=1,425.

Project rating scale: 0-4.

2) Secondary Level

It is difficult to judge whether the Project Purpose at the secondary level is to be achieved due to the change of monitoring items between the separate surveys in 2009 and in 2011, and the necessity to verify evaluation tools and modify target figures.

(a) ASEI/PDSI Check List (Target Figure: 3.0)

(b) Lesson Observation Index (Target Figure: 3.0)

The project proposes the unification of these two indicators due to the progress of student-centred lessons. Therefore, it is necessary to analyse the validity and target figure between the Kenyan and Japanese sides. Moreover, the Project conducted the baseline survey in 2009, but the monitoring tool was modified in 2011 due to some inconvenience in the previous tool. Since it is not possible to compare and analyse the data in 2009 and 2011, it is necessary to determine which data will serve as the baseline for the final evaluation.

Table 12: Lesson Observation Index (Secondary Level)

	Target	2009	2011
Lesson Observation Index	3.0	2.7	1.6

Source: SMASE Project. (2011). "Information for Mid-term Evaluation 2011." p. 11.

2009 data: N=72, 2011 data: N=223.

Project rating scale: 0-4.

Note: Monitoring tool in 2011 is different from that in 2009 so that it is not possible to compare the data.

(c) Student Participation Index (Target Figure: 3.0)

The indicator was monitored in 2011, and the mean figure was 2.5. (The Project is actually

processing the data.) The indicator will be analysed in the final evaluation.

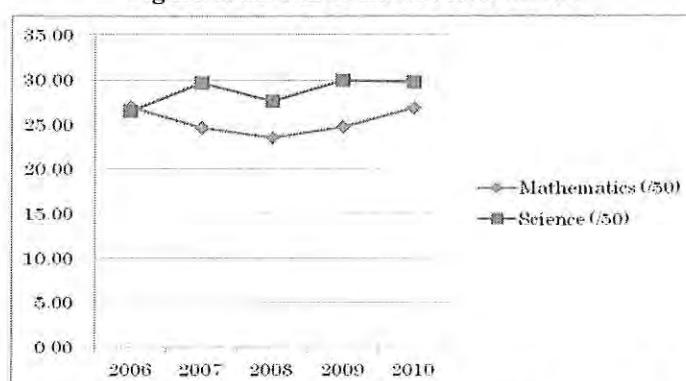
2-5. Achievement of the Overall Goal

Assessment of the possibility to achieve the Overall Goal is not applicable for the Mid-term Review. The following can be used as reference information.

(a-1) Performance in National Examination at primary education

Figure 1 shows the performance in the national examinations at the primary education (KCPE). The mean score for each year can be identified in ANNEX 10.

Figure 1: KCPE General Performance

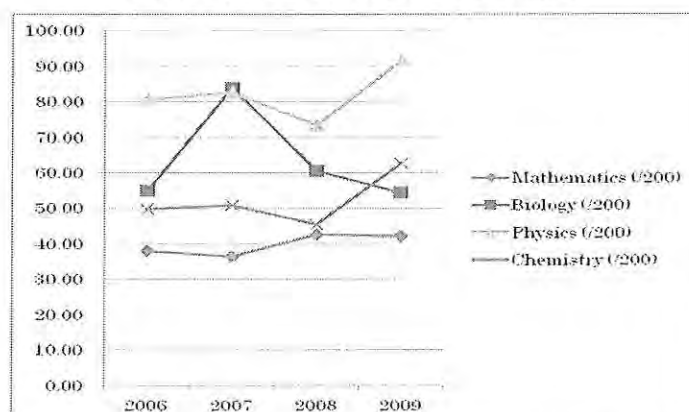


Source: Data of 2006-2008: Kenya National Examination Council. (2008). "The Year 2008 KCPE Examination Report", Data of 2009, 2010: SMASE Project. (2011). "Information for Mid-term Evaluation 2011." p. 6.

(a-2) Performance in National Examination at secondary education

Figure 2 shows the performance in national examinations at the secondary education (KCSE). The mean score for each year can be identified in ANNEX 10.

Figure 2: KCSE General Performance



Source: Data of 2006-2008: Kenya National Examination Council. (2008). "The Year 2008 KCPE Examination

(b) Result of original achievement tests, such as SPIAS at the secondary level

The Project has not conducted the SMASSE Project Impact Assessment Survey (SPIAS) or other achievement tests at the secondary level during this phase. The Project plans to implement the SPIAS in 2012.

2-6. Changes of Precondition and Important Assumptions of the Project

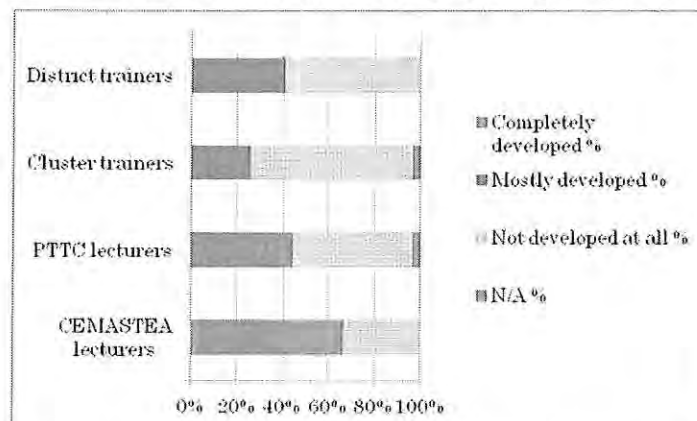
1) Teachers' union support the Project

During the process of project implementation, the secondary teachers' union (KUPPET) expressed its dissatisfaction with the secondary INSET, which was referred in a news article. Meanwhile, the primary teachers' union (KNUT) has been interfering with SMASE INSET in a few districts, such as Kitui and Machakos. The Permanent Secretary of MOE established a committee to address the issues raised by the teachers' unions. Meanwhile, CEMASTEА planned to hold a meeting with the representative from KNUT and KUPPET in order to discuss the issues, but it was postponed.

2) The Counterparts at CEMASTEА and key trainers in the developed cascade levels will be motivated enough to continue to work for the Project.

More than half of CEMASTEА counterparts considered that the key trainers were not motivated at all. Moreover, one-third of CEMASTEА counterparts considered that they, themselves, were also not motivated at all as shown in Figure 3.

Figure 3: CEMASTEА CPs' Observation on the Level of Motivation of the Key Trainers



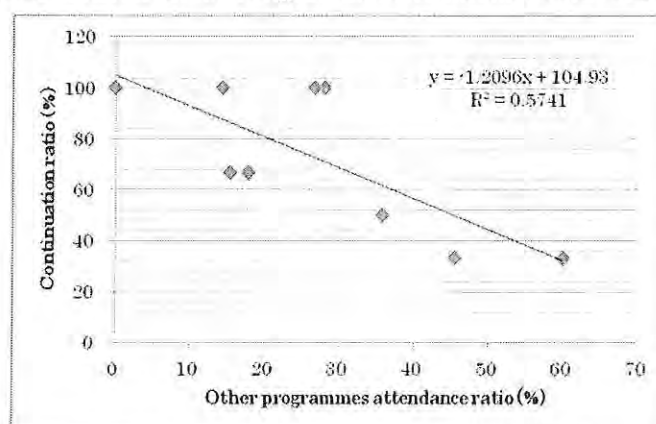
Source: Questionnaire survey to CEMASTEА CP (N=27). (Do you think that the following INSET trainers have developed/are developing capacities to continue serving as trainers (including development of the training content) after the termination of the Project? The survey defines that "Necessary capacity" has three aspects, namely Knowledge, Facilitation, and Motivation.)

District level interviewees explained the possible reason for the lack of motivation could be that Cluster and District Trainers do not receive valued certificates leading to promotion after serving as trainers. Regarding CEMASTEAs counterparts, the reason may be the staff promotion system in CEMASTEAs: Other than the Director and Deputy Director, promotion in CEMASTEAs did not reflect development of the TSC job category.

3) Other programs do not adversely affect teachers' participation.

It was observed that there was the disparity among the districts in the continuation ratio of the trainee teachers at the primary INSET. According to the interview with TAC Tutors and Head teachers, the teachers' continuation ratio at the cluster training in 2011 was approximately 10% in Machakos district and 87% in five schools in Naivasha district. In addition, in Keiyo South district, 25 teachers out of 76 participants in 2010 participated in 2011 (the total number of participants in 2011 was 51), because these teachers started attending other programs such as Teacher Proficiency Course offered by MOE and university degree/diploma courses that offered teachers more possibilities in promotion and job mobility. In fact, the ratio of teachers who attended other programmes was high. A teacher in Machakos district said that 27 or 28 out of 32 teachers were in such programmes in her school, 26 out of 125 teachers in five schools whose Head teachers were interviewed, attended other courses in Naivasha, and 21 out of 60 teachers in four schools attended other programmes in Keiyo South District. As a result, there were many changes of participants due to various reasons in some districts. Figure 4 shows a clear correlation between the attendance ratio in other programmes and continuation ratio, that is, the number of teachers that participated in the SMASE INSET in both 2010 and 2011 to the total number of participants per school.

Figure 4: Correlation between Other Programmes Attendance Ratio and Continuation Ratio



Source: Interview with head teachers at Naivasha and Keiyo South (N=9).

3. Implementation Process (See details in ANNEX 11)

3-1. Appropriateness of the Project Management Structure

3-1-1. Administration of the Project

1) Joint Coordinating Committee (JCC)

Although JCC was supposed to be held annually, JCC had not met during 2009 and 2010 as stipulated in the agreed document. Consequently, changes in implementation of the Project activities were effected without JCC's approval, lack of budget for primary activities in 2009/2010 and the necessity to take measures to address it was not well-shared among the concerned parties. When the first JCC meeting was called on 23 May 2011, the agenda was not discussed as the issues required re-engineering of CEMASTEА. The Technical Committee on the Re-engineering of CEMASTEА concluded its discussions in August 2011, but the final report has not been submitted yet.

2) National Planning Committee (NPC)

In related to National Planning Committee, the administrative body of the Project, the Record of Discussion did not guide on the frequency of NPC, however, NPC met weekly except when staffs were out on field activities. As a result, some decisions were made outside NPC. In addition, NPC did not restrict itself to project matters.

In addition to the committees established exclusively for the Project, the Board of Governors of CEMASTEА (BOG) is responsible for enhancing the implementation of the Project activities as part of the CEMASTEА programme, in accordance with the performance contract between the BOG and the GOK through MOE. However, it seems that the BOG did not keep track of SMASE activities well enough for them to manage and control these effectively: the MOE's Assessment Report for CEMASTEА (Ref: QAS/T/1/48(36) dated 31 March 2011) stated that "The BOG met too frequently and failed to discuss the performance of the INSET."

3-1-2. Implementation Structure

1) National Implementation Structure

CEMASTEА strengthened its management structure through clarification of the organisational structure with the introduction of performance contract and increased contacts with external organisations. However, it still has a certain weakness with its data management and proper supervision on daily tasks. At the same time, communication between CEMASTEА and other

concerned parties was sometimes constrained. Delay in communication from CEMASTEА to the districts sometimes caused difficulty in organising activities. On the other hand, delays in getting feedback/response from DEOs to CEMASTEА hindered the improvement of the programme. Moreover, district management personnel mentioned that “there is sometimes confusion about to which institution (MOE or CEMASTEА) the report should be sent”.

2) District Implementation Structure for Primary INSET

Expanded DPCs as outlined in the Project Document were not operationalized, because funding of the primary activities came from MOE through CEMASTEА to the district education offices. However, the existing MOE administration structure was well-functioning to implement INSET, except for the financial and administrative challenges explained afterwards and difficulty in obtaining precise statistics on the number of schools, clusters, zones and districts for planning purpose due to the rearrangement of districts.

As the DPCs were not working for the primary INSET, CEMASTEА coordinated directly with PTTCs with assistance of MOE. However, the PTTCs did not have administrative authority over Cluster Trainers who were under District Education Officers’ (DEOs) supervision. Therefore, concerns as to coordination with DEOs and supervision on teachers were expressed by PTTC principals. Moreover, PTTC principals were not satisfied with the amount of payment as stated in item “3-1-3. 2”. As a result, PTTCs did not sign the Minutes of Understanding (MOU) with MOE to be a part of the INSET implementation structure.

3) District Implementation Structure for Secondary INSET

After year 2008, due to the post election problems and creation of new districts, many DEOs, Chairmen of DPCs, and District Trainers were newly appointed and activities implemented in phase 2 were not smoothly continued. However, there were no serious issues noted in the functions of DPC in implementing the secondary INSET in three visited districts during the Study. The "Handbook on Management of District SMASSE Programmes" will be reviewed after issuance of the new Education Act and TSC Act.

3-1-3. Budget Expenses

1) Funding CEMASTEА Activities

The SMASE Project budget was not partly factored in the MOE printed estimates in the fiscal year 2009/2010, which delayed the implementation of some activities. However, the SMASE budget was reflected in 2010/2011 and 2011/2012 for the development of activities. The increase in the number

of districts from 150 to 285 made the budget inadequate together with the following two reasons: 1) number of participants in DEO and DQASO workshop increased, and 2) a one-time workshop for all DEOs had to be held for policy decisions, but CEMASTEAM lacked the capacity to accommodate and, therefore, an alternative venue had to be rented. Moreover, due to inflation, unit costs increased for all INSETs and workshops.

2) Funding Primary Activities

Primary INSET suffered limitation of funding. PTTC principals claimed the following: 1) due to inflation, it was not possible to give the standard of service befitting the participants; and 2) there were several items with no budget provisions such as transportation for participants for the actualization and collection of materials from Nairobi. It was also reported that the travel allowance was not sufficient for many participants.

Regarding cluster INSET, some of the items were not provided budget; for example, 1) collection of materials for workshops and INSET from Nairobi, 2) tracking of activities' progress by the DEO office, 3) residential INSET for ASAL areas. Moreover, insufficient amount of lunch allowance and lack of transportation fee caused dissatisfaction among teachers. Furthermore, due to the refund system of the primary INSET participants, some teachers attended training without lunch and tea, which affected the effectiveness of training.

3) Funding Secondary Activities: SMASSE District Fund

The SMASSE District Fund was managed within the tuition vote head of FDSE Programme. The regulated Circular (reference No. MOE/GI/9/1/44 dated 9 January 2008) did not allocate specific amount of the tuition to SMASSE activities, but from past experiences, an allocation of the maximum Ksh 200 per learner was recommended by the "Handbook on Management of District SMASSE Programmes".

There is no proper mechanism to ensure accountability of SMASSE INSET Funds at district level. Although no mismanagement issues were raised in the three visited districts, it would be necessary for MOE to put in place audit mechanisms and strengthen management of District INSET by enforcing accountability.

3-2. Appropriateness of the Training System

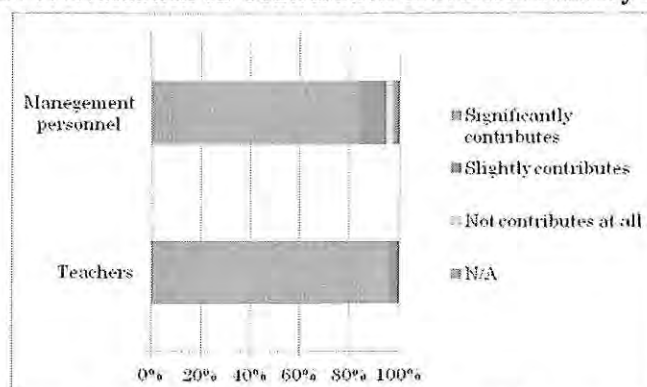
1) Training System for Primary INSET

In 2010, 55,393 teachers participated in the INSET (92% of target figure). Considering the reasons

that the number did not reach the target, i.e., difficulties to implement non-residential trainings in ASAL and other hardship areas, and the existence of schools in which less than three teachers are working as shown in item “2-3. 3) (b)”, it can be concluded that the primary INSET provision system is working at the moment using the existing MOE administration structure.

Figure 5 shows that the district management personnel and teachers appreciated the contribution of SMASE INSET to the improvement of mathematics and science education.

Figure 5: Evaluation on Contribution of SMASE Primary INSET



Source: Questionnaire survey to teachers (N=22) and district management personnel (N=37).
 (Do you think that the SMASE INSET contributes to the improvement of mathematics and science lessons?)

Regarding the trainers’ capacity at each cascade level, CEMASTEAs counterparts evaluated that the knowledge and facilitation skills of the National Trainers (CEMASTEAs lectures), Regional Trainers (PTTC lectures) and Cluster Trainers (selected teachers) were mostly adequate to continue serving as trainers after termination of the Project. However, as shown previously, CEMASTEAs counterparts observed limited motivation in these trainers. Moreover, CEMASTEAs counterparts considered that inconsistency of Cluster Trainers in some districts was also an issue. In five zones in Machakos district, 14 trainers out of 24 (58%) continued to be trainer in 2011, 15 out of 17 (88%) continued in Naivasha district, while only one quarter of trainers (25%) continued in Keiyo South district. Furthermore, there was also an issue of unbalanced number of mathematics and science trainers. At the cluster level, as suggested by a donor agency, TAC Tutors might play an important role to support Cluster Trainers in the future.

On the other hand, trainees at each cascade level valued the training that they attended. Most of them considered that the training content was completely adequate or mostly adequate, whereas some of them considered that the management and logistics and duration/timing of the training were mostly inadequate (See detailed figures in ANNEX 11). This result was supported by various interviews and

literature survey saying, “The training should be conducted during school term,” “The amount of lunch allowance is not sufficient,” “The transportation fee should be provided,” etc. During holidays, teachers travelled from their home which is invariably farther than from the school to the cluster centre.

2) Training System for Secondary

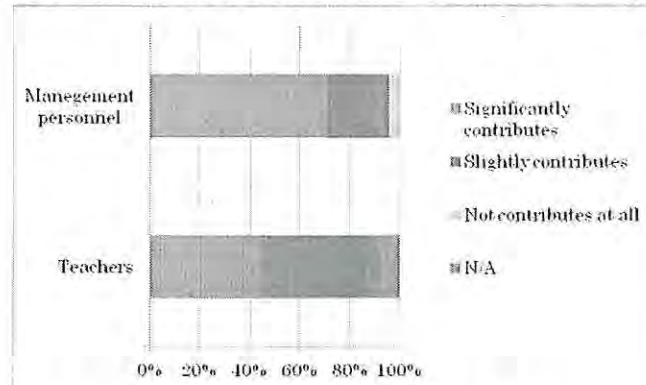
Secondary INSET was implemented by the Kenyan side: in other words, it is out of the scope of the Project. In addition, the training at the district level was supposed to be planned and implemented independently by DPCs with CEMASTEА monitoring.

Secondary INSET programme was not implemented as expected: the Management Handbook on District SMASSE Programme is not fully utilized by most of DEOs and DPCs; most of the District Trainers failed to prepare course contents for District INSET by themselves due to time constraints and also did not send to CEMASTEА for quality control; and the support from DPCs to District Trainers to conduct District INSET was minimal.

Although MOE’s policy aims to implement INSET for 20,000 science and mathematics teachers every year, only mop-up courses were actually conducted in 2009 and 2010, which were attended by 1/2 to 1/4 of target teachers. Therefore, the number of participants at the District INSET decreased compared with those in the Phase 2 period. While the numbers of participants during phase 2 were 16,363 (2004), 16,251 (2005), 14,690 (2006) and 14,581 (2007), there were only 7,771 in 2009 and 4,616 in 2010. The appointment of new DEOs and DQASOs in 2008 could also attribute to the decrease. DPCs requested support from CEMASTEА/Project to conduct District INSET.

In the meantime, the effect of the INSET on teachers was still recognised by the teachers and management personnel as shown in Figure 6, although it was less appreciated than that of the primary level. CEMASTEА counterparts evaluated that the District Trainers’ knowledge and facilitation skills had developed/were developing completely or mostly. However, as shown previously, they observed that there was a problem in terms of motivation. Around 60% of CEMASTEА counterparts considered that the motivation of District Trainers did not improve at all.

Figure 6: Evaluation on Contribution of SMASE Secondary INSET



Source: Questionnaire survey to teachers (N=22) and district management personnel (N=37).
 (Do you think that the SMASE INSET contributes to the improvement of mathematics and science lessons at secondary level?)

On the other hand, trainees’ major complaints on the District training were as follows: 1) use of students’ dormitories/mattress during INSET, 2) enforcement by some DEOs to teachers to participate in the INSET, and 3) repeated content after cycle 4, i.e., “There is almost nothing new except ICT integration”.

3) A System of Quality Control and Improvement of INSET

Coordination with TSC, Kenya Institute of Education (KIE) and Kenya National Examination Council (KNEC) in the curriculum and material development meant not only improvement of the quality of INSET, but also the possibility that TSC would consider CEMASTE/Project INSET as an official training leading to better prospects of the promotion. However, CEMASTE/Project did not coordinate with the above-mentioned organisations.

Meanwhile, CEMASTE intended to improve the quality of INSET through the following: 1) CEMASTE invited selected PTTC lectures and Cluster Trainers to produce INSET materials, and; 2) CEMASTE developed a format to collect information from districts. However, the feedback system did not function fully due to the delay of information. Moreover, some district management personnel would have needed workshops in writing reports to enhance the quality of reporting from the base.

4) Teachers’ Willingness/Reluctance to Participate in INSET

Primary teachers showed absolutely high motivation to participate in SMASE INSET. According to the questionnaire survey, 18 out of 22 primary teachers (82%) said they would like to participate

more in SMASE INSET.

On the other hand, secondary teachers showed a certain “fatigue” to attend SMASSE INSET. An ex-District Trainer mentioned: “Once the way of teaching improved, but it is going back to the traditional way. The reason could be attributed to enforcement of participation in INSET, which led to negative attitude of teachers. It is also true that it is a challenge for all teachers to finish the examination syllabus”. Moreover, various interviewees mentioned problems such as training was implemented during vacation, attendance was not given certification, and teachers who have attended were neither promoted nor given any annual increment of salary, and participant teachers were not receiving any out of the pocket allowance at the district INSET. A district’s personnel expressed this situation as such: “Secondary mathematics and science teachers feel ‘punished’ because the other subjects’ teachers are not required to attend any INSET”. However, authorities would not respond to the demand of issuing valued certificates or promotion of teachers, because it implies a tremendous increase of payment.

Table 14 summarizes the actual situation and challenges that SMASE Project is facing at the district level.

Table 13: Actual Situation and Challenges of Primary and Secondary INSET

	Primary	Secondary
Training content	Appreciated. PTTC lecturers support CEMASTEAs to develop content.	Support by CEMASTEAs to District Trainers to prepare content is necessary. Dissatisfaction of participants due to repetition of content is observed.
Implementation structure	PTTC lecturers provide regional training, but PTTC role will be analysed in the future. TAC Tutors can provide technical assistance for Cluster Trainers in the future.	No structural problem found. However, accommodation for participants is a challenge.
Administration and logistics	Provision of lunch is a problem. Calling back students for actualization during the vacation is a problem.	“Handbook” should be analysed and reviewed regarding duration, timing and unit costs of INSET. Dissatisfaction of teachers with strict instruction of some DEOs is observed.

Finance	<p>Unit cost of lunch and transportation and facilitation fee should be analysed and reviewed.</p> <p>Lunch allowance and transportation for the Head teachers at the Cluster centre, TAC Tutors and Cluster Trainers will be analysed and reviewed.</p> <p>Implementation in ASAL should be realized as soon as possible.</p> <p>Refund to every party should be by the end of training.</p> <p>Possibility to finance INSET through FPE fund (creation of primary SMASE District Fund) should be considered.</p>	<p>Out of pocket allowance will be considered.</p> <p>It is necessary to strengthen accountability and transparency of SMESSE District Fund.</p>
Certification	<p>The value of INSET certificate should be determined.</p> <p>Otherwise, it is necessary to find another way to mitigate dissatisfaction of participants.</p>	<p>The value of INSET certificate should be determined.</p> <p>Otherwise, it is necessary to find another way to mitigate dissatisfaction of participants.</p>
Communication	<p>Communication between CEMASTEAs, DEOs and schools should be improved.</p>	<p>Feedback from DPCs to CEMASTEAs is a challenge.</p>

Source: Based on the discussion among MOE official, CEMASTEAs counterparts, JICA Experts and the Study Team held on 30 September 2011.

4. Evaluation by the Five Criteria (See details in ANNEX 12)

4-1. Evaluation by Means of the Five Criteria

Results of the evaluation by means of the five criteria are summarized below.

4-1-1. Relevance: High

The Project is considered relevant as shown in Table 15.

Table 14: Evaluation on Relevance

Item	Result	Findings
Necessity	High	<ul style="list-style-type: none"> - Overall Goal and Project Purpose are relevant to the necessity of the Kenyan society. - Overall Goal and Project Purpose are relevant to the necessity of the target groups at both the primary and secondary levels in terms of the training effect on the teaching methods and difference from the other INSET programmes.
Relevance to the policies	High	<ul style="list-style-type: none"> - Overall Goal and Project Purpose are relevant to the Kenya's governmental policies, such as Vision 2030 and Sessional Paper No. 1 of 2005. - Overall Goal and Project Purpose are relevant to the Japan's governmental policies, such as ODA policies, Japan's country assistance policy for Kenya and Japan's sector assistance policy on education.
Relevance in the education assistance in Kenya	High	<ul style="list-style-type: none"> - The INSET is a relevant measure to improve the quality of mathematics and science education according to the KESSP and KESSP2 (draft). - Selection of target group (6-12) of mathematics and science teachers is relevant, because teachers are conscious of their necessity to improve their teaching methods. - Japan has technical comparative advantage in the field of INSET in mathematics and science education.
Others	Low	<ul style="list-style-type: none"> - Teachers' union expressed its dissatisfaction with the secondary INSET, which was referred in a news article. - Introduction of FDSE programme without increasing teachers affected teaching practice at school. Classrooms are crowded, especially at District schools.

Source: Elaborated by the author based on the Evaluation Grid: Evaluation by the Five Criteria (ANNEX 12).

4-1-2. Effectiveness: Medium

Effectiveness of the Project is considered medium as shown in Table 16.

Table 15: Evaluation on Effectiveness

Item	Result	Findings
General achievement of	Medium	<ul style="list-style-type: none"> - Every indicator of Project Purpose requires a review of the validity of its evaluation tool and target figures due to the modification of tools.

Project Purpose		- The result of Lesson Observation Index shows significant improvement in the lesson during project implementation at the primary level.
Causal relation	Low	<ul style="list-style-type: none"> - It is necessary to identify secondary INSET activities that will be implemented by the Kenyan side as part of the important assumptions of the Project. - There is a case that university degree programs and other programs are adversely affecting teachers' participation in the SMASE INSET.

Source: Elaborated by the author based on the Evaluation Grid: Evaluation by the Five Criteria (ANNEX 12).

4-1-3. Efficiency: Medium

Efficiency of the Project is considered medium as shown in Table 17.

Table 16: Evaluation on Efficiency

Item	Result	Findings
Achievement of Outputs	Medium	<ul style="list-style-type: none"> - A system of National INSET for Regional Trainers is being established in accordance with the PDM (Output 1). - A system of Regional INSET and regional workshop is being established at PTTCs. However, it is necessary to consider the consistency of the Cluster Trainers and the role of PTTCs after the introduction of Counties (Output 2). - A system of Cluster INSET is being established. However, the Project should promote consistent attendance of trainee teachers at the cluster training (Output 3). - First round of sensitization workshop has been conducted by CEMASTEAs staff for secondary principals, but it is necessary to consider how to establish a system of continuous sensitization of the principals (Output 4). - It is too early to assess the progress of teachers' ASEI/PDSI practices in the secondary mathematics and science classrooms in this phase (Output 4). - Roles of CEMASTEAs as resource centre for mathematics and science education has not strengthened according to the PDM indicators (Output 5).
Positive and negative factor	Medium	<ul style="list-style-type: none"> - JCC had not met during 2009 and 2010 as stipulated in the agreed document. - Only one JCC was called, but there was no specific conclusion at the meeting. - MOE has set up a technical committee to come up with ways of enhancing the effectiveness of SMASE INSET. - Staff turnover at MOE, CEMASTEAs and district education offices sometimes affected the smooth implementation.
Result of Inputs	Medium	<ul style="list-style-type: none"> - Building, offices and other facilities were provided by the Kenyan side. However, poor accommodation facilities sometimes resulted in dissatisfaction among the trainees. - Understaffing of CEMASTEAs personnel and shortage of staff with primary teachers' training background were observed. - Late disbursement of approved fund and shortage of funding led to difficulties in the implementation process. - Dispatch of JICA Experts was realized in accordance with the plan. Several

		counterparts mentioned the necessity of university professors to assist in the project activities.
		- Training in Japan and third countries were well accepted.
		- Training materials and equipment were provided timely, but insufficient quantity of provision due to lack of statistics were observed by the training participants.
		- Disbursement of JICA expenses was in accordance with the plan.
Cost	High	- DAC Peer Review of Japan conducted by OECD recognised strong and high-level ownership of the Project by MOE, which led to “a decrease in unit cost, making use of government buildings and officials”.
Programme assistance	High	- Major donors in the education sector recognise CEMASTEА and SMASE Project in the INSET system in Kenya, and expect its leading role in the future.
Causal relation	Medium	- Activities at the secondary level and Inputs at the primary level that were originally planned in the PDM were not sufficient to achieve the expected Outputs.
		- Some of the counterparts at CEMASTEА and key trainers were not motivated enough, according to the observation of CEMASTEА counterparts.

Source: Elaborated by the author based on the Evaluation Grid: Evaluation by the Five Criteria (ANNEX 12).

4-1-4. Impact: Medium

Impact of the Project is considered medium as shown in Table 18.

Table 17: Evaluation on Impact

Item	Result	Findings
Achievement of Overall Goal	-	- It is not applicable to the Mid-term Review Study. - The Project plans to implement the SPIAS in 2012.
Causal relation	High	- Teachers and district management personnel in the education sector recognise that the improvement of the quality of lessons, as a result of INSET, contributes to the quality of learning of students, according to questionnaire survey.
Impacts	Medium	- Authorities’ willingness to expand INSET to the other subjects is observed. - Negative publicity in the newspaper somewhat affected the motivation of teachers.

Source: Elaborated by the author according to the Evaluation Grid: Evaluation by the Five Criteria (ANNEX 12).

4-1-5. Sustainability: Medium

Sustainability of the Project is considered medium as seen in Table 19.

Table 18: Evaluation on Sustainability

Item	Result	Findings
Institutional	Medium	- CEMASTEА Re-engineering Committee recognised lack of clear policy guideline and legal framework for INSET provision.

Organizational	Medium	<ul style="list-style-type: none"> - MOE plans to establish a legal framework for INSET. - The new Education Act is still not presented. - CEMASTEА was established under official legal framework, has been developing its organisational structure and capacity, and is seeking for SAGA status. - CEMASTEА management still has challenges in terms of staffing, supervision of activities and experiences and knowledge management. - Primary INSET provision system is working at the moment, using the existing MOE administration structure. - Secondary INSET was supposed to be provided by DPC, but sometimes was not operated.
Financial	Low (Primary)	- CEMASTEА counterparts and district management personnel consider that the SMASE District Fund, using FPE fund, should be established for primary INSET and disbursed primary fund through the district offices.
	Medium (Secondary)	<ul style="list-style-type: none"> - Secondary INSET is financed by SMASSE District Fund. - Any audit has not been applied to the SMASSE Fund. An audit system on it is necessary to avoid any mismanagement.
Technical	Medium	<ul style="list-style-type: none"> - Content of INSET should be developed in cooperation with KIE, and the curriculum should be recognised as an official one. - CEMASTEА lecturers and key trainers have developed/are developing their knowledge and facilitation skill, but they are not sufficiently motivated. - Management personnel have developed the capacity to provide INSET.
Incentive for teachers	Medium	<ul style="list-style-type: none"> - Since there are not any financial-related incentives for teachers, the motivation of teachers, especially of secondary teachers, is not very high. - The necessity to develop teachers' capacity is well understood by the teachers and personnel concerned.

Source: Elaborated by the author based on the Evaluation Grid: Evaluation by the Five Criteria (ANNEX 12).

4-2. Positive and Negative Factors

The following issues were identified as positive and negative factors in the planning and implementation of the Project.

4-2-1. Positive Factors

1) Planning

- SMASE INSET was widely accepted as a national programme for education and teachers' quality improvement.
- CEMASTEА was recognised as governmental INSET institution.
- The implementation structure matched the educational administration in Kenya.

2) Implementation

- Technical Committee on the Re-engineering of CEMASTEА promoted understanding on INSET and role of CEMASTEА among concerned parties.

4-2-2. Negative Factors

1) Planning

- The present phase of the Project started hastily due to the overwhelming success of phase 2, strong demand of the society and political will.
- As it started without piloting at the primary level, the Project design was not integrated necessary measures to address problems that are most likely to be encountered such as the following: 1) dissatisfaction of teachers on financial and administrative matters, 2) necessity to conduct residential INSET in ASAL, and 3) inconsistency of attendance of Cluster Trainers and teachers in the training.
- Secondary activities other than the workshop for principals were considered as those which would be implemented by the Kenyan side. However, as there were no statements regarding those activities in the PDM, CEMASTEА staff did not pay much attention to them. Additionally, the verifiable indicators of Output 4 are not appropriate to evaluate the progress of its narrative summary, "Secondary mathematics and science teachers' ASEI/PDSI practices in classroom are enhanced".
- There is not a national accreditation system that considers the promotion or salary increment for teachers who attended the training.

2) Implementation

- The Project started without provision of sufficient finance, such as the Kenyan side's budget for the primary INSET in 2009/2010.
- The Project started without accurate information about the number of districts and clusters, which affected the implementation, such as provision of training materials, and monitoring and evaluation of activities.
- During this phase, the institutional memory accumulated in the previous phases was lost to a certain extent due to, for example, appointment of new officials at the district level.
- JCC was not held as expected.
- NPC met weekly except when staffs were out on field activities. As a result, some decisions were made outside NPC. NPC did not restrict itself to project matters.
- In addition, according to Japanese Experts, meetings at CEMASTEА, such as NPC and

committees, neither started punctually nor were participated by all designated members. Consequently, the same topics were discussed repeatedly in various meetings.

- The detailed work flow of the major activities, such as developing training modules, and demarcation among technical personnel including Japanese Experts were not clearly defined. As a consequence, some activities were implemented without sufficient time for preparation and consultation with Japanese Experts, thus sacrificing the quality of products.
- A system to receive feedback from districts and make use of it was not always effective.
- Information and data which were collected through the monitoring and evaluation of activities were not registered adequately. Moreover, progress reports were not prepared jointly by both Kenyan and Japanese sides.

5. Conclusion

CEMASTEAs was created to implement INSET for secondary mathematics and science teachers in 2004. Since then, it has developed to be an official governmental agency to implement national INSET. In 2009, CEMASTEAs and the Project started activities at the primary level in addition to the secondary, which increased the target population four times as large as that in phase 2. Despite such an increase, both Kenyan and Japanese sides have been cooperatively developing activities. They conducted two nationwide INSETs for primary teachers in 2009 and 2010, which is considered as a great achievement of the Project.

On the other hand, the Mid-term Review Study identified the following issues that need to be addressed for further success of the Project:

1) Primary INSET

- (a) A system of external quality control of INSET is not existent (See 3-2. 3)).
- (b) Monitoring and evaluation data and implementation records from district education offices were not properly archived at CEMASTEAs (See 1-7.).
- (c) Turnover of Cluster Trainers hinders accumulation of skills and knowledge to effectively deliver the training content at the Cluster INSET (See 3-2. 1)).
- (d) Dissatisfaction of PTTC principals and trainee teachers as for financial and administrative matters was observed (See 3-1-3. 2)).
- (e) Difficulties to conduct residential INSET in ASAL were observed (See 3-1-3. 2)).
- (f) Refund system for the primary INSET (at cluster level) did not work smoothly and the fund was insufficient (See 3-1-3. 2)).
- (g) Other training programs for primary teachers sometimes affected teachers' participation in the primary INSET (See 2-6. 3)).
- (h) Teachers demand valued certificates (See 2-6. 2)).
- (i) The role of PTTC is not clearly defined and streamlined (See 3-1-2. 2)).

2) Secondary INSET

The following is INSET related-issues, which are, however, out of the project scope:

- (a) A system of external quality control of INSET is not existent (See 3-2. 3)).
- (b) Monitoring and evaluation data and implementation records from district education offices were not properly archived at CEMASTEAs (See 1-7.).
- (c) There is no proper mechanism to ensure accountability of SMASSE INSET Funds at district level (See 3-1-3. 3)).

- (d) The “Handbook on Management of District SMASSE Programme” is not fully utilized and necessary to be reviewed (See 3-1-2. 3)).
- (e) Necessary training activities are not specified in PDM (See 3-2. 2)).
- (f) District Trainers did not have sufficient time to develop their own training content (See 3-2. 2)).
- (g) Teachers observed repetition of training contents after Cycle 4 (See 3-2. 2)).
- (h) Teachers show a certain level of reluctance to participate in INSET (See 3-2. 2)).
- (i) Teachers strongly demand valued certificate. (See 3-4.)

3) Management of the Project

- (a) Decision making body of the Project, JCC, had not met during 2009 and 2010 as stipulated in the agreed document. (See 3-1-1. 1), 2)).
- (b) CEMASTEА still has a certain weakness with its data management and proper supervision on daily tasks (3-1-2. 1)).
- (c) CEMASTEА budget was not sufficient to implement activities specified in PDM (3-1-3. 1)).

It is imperative for CEMASTEА/Project to address the above-mentioned issues. Firstly, the Study concluded that the secondary INSET faces various challenges in the implementation of the training activities which should be addressed as soon as possible. Otherwise, the secondary mathematics and science INSET could not maintain support from the teachers. Secondly, the CEMASTEА/SMASE Project should make the most of experiences of the current secondary INSET. If these issues are not well-analysed and addressed, the same issues could happen at the primary INSET. It is necessary for the CEMASTEА/Project to take immediate actions to safeguard the primary teachers who are currently sufficiently motivated to participate in INSET and improve their capacity. Finally, both the Kenyan and Japanese sides should review the PDM in accordance with any adjustment agreed between both sides.