

添付資料

1. RD およびミニッツ（プロジェクトドキュメント含む）
2. 事前評価調査ミニッツ
3. 関係資料（教育セクターへの海外援助金額詳細）

**RECORD OF DISCUSSIONS BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY AND
AUTHORITIES CONCERNED OF THE GOVERNMENT OF
THE REPUBLIC OF KENYA ON
JAPANESE TECHNICAL COOPERATION FOR
THE STRENGTHENING OF MATHEMATICS AND SCIENCE
EDUCATION (SMASE) PROJECT**

With respect to the Japanese technical cooperation for the Strengthening of Mathematics and Science Education (SMASE) Project (hereinafter referred to as “the Project”), Japan International Cooperation Agency (hereinafter referred to as “JICA”), through the Chief Representative of JICA Kenya Office, held a series of discussions with the Kenyan authorities concerned.

As a result of the discussions, and in accordance with the provisions of the Agreement on the Technical Cooperation between the Government of Japan and the Government of the Republic of Kenya, signed in Nairobi on 29th April, 2004 (hereinafter referred to as “the Agreement”), both sides agreed on the matters referred to in the document attached hereto.

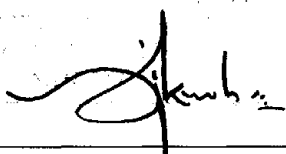
Nairobi, 28th November, 2008



Mr. Yoshiyuki Takahashi
Chief Representative,
Kenya Office,
Japan International Cooperation Agency,
Japan



Prof. Karega MUTAHI
Permanent Secretary,
Ministry of Education,
The Republic of Kenya



Mr. Joseph K. Kinyua
Permanent Secretary,
Ministry of Finance,
The Republic of Kenya

THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN JICA AND THE GOVERNMENT OF THE REPUBLIC OF KENYA

1. The Government of the Republic of Kenya will implement the Strengthening of Mathematics and Science Education (SMASE) Project (hereinafter referred to as “the Project”) in cooperation with JICA.
2. The Project will be implemented in accordance with the Master Plan, which is given in Annex I.

II. MEASURES TO BE TAKEN BY JICA

In accordance with the laws and regulations in force in Japan, and the provisions of Articles of the Agreement, JICA, as the executing agency for the technical cooperation by the Government of Japan, will take, at its own expense, the following measures according to the normal procedures of its technical cooperation scheme.

1. DISPATCH OF JAPANESE EXPERTS

JICA will provide the services of the Japanese experts as listed in Annex II. The provision of Article V, VI, and X of the Agreement will be applied to the above-mentioned experts.

2. PROVISION OF MACHINERY AND EQUIPMENT

JICA will provide such machinery, equipment and other materials (hereinafter referred to as “the Equipment”) necessary for the implementation of the Project as listed in Annex III. The provision of Article VII of the Agreement will be applied to the Equipment.

3. TRAINING OF KENYAN PERSONNEL IN JAPAN AND IN THIRD COUNTRIES

JICA will receive the Kenyan personnel connected with the Project for technical training in Japan and will make necessary arrangements to conduct technical training in third countries.

4. TRAINING FOR PERSONNEL OF SMASE-WECSA (WESTERN, EASTERN, CENTRAL AND SOUTHERN AFRICA) MEMBER COUNTRIES IN KENYA

JICA will make necessary arrangements to conduct regional training for the personnel.

of SMASE-WECSA member countries in Kenya.

Note SMASE-WECSA is an inter-regional association that aims at strengthening mathematics and science education in its member countries. The Project will assist the operation of the Secretariat of SMASE-WECSA, which is based at the Centre for Mathematics, Science and Technology Education in Africa (hereinafter referred as "CEMASTEА"), within the framework of its project activities as outlined in ANNEX I.

III. MEASURES TO BE TAKEN BY THE GOVERNMENT OF THE REPUBLIC OF KENYA

1. The Government of the Republic of Kenya will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period of Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.
2. The Government of the Republic of Kenya will ensure that the technologies and knowledge acquired by the Kenyan nationals as a result of Japanese technical cooperation will contribute to the economic and social development of Kenya.
3. In accordance with the provision of Article V of the Agreement, the Government of the Republic of Kenya will grant, in the Republic of Kenya, privileges, exemptions and benefits to the Japanese experts referred to in II-1 above and their families.
4. In accordance with the provision of Article VII of the Agreement, the Government of the Republic of Kenya will take necessary measures to receive and use the Equipment provided by JICA under II-2 above.
5. In accordance with the provision of Article V of the Agreement, the Government of the Republic of Kenya will provide the services of Kenyan counterpart personnel and administrative personnel as listed in ANNEX IV.
6. The Government of the Republic of Kenya will take necessary measures to ensure that the knowledge and experience acquired by the Kenyan personnel from technical training in Japan and in third countries will be utilised effectively in the implementation of the Project.

7. In accordance with the provision of Article V of the Agreement, the Government of the Republic of Kenya will provide the buildings and facilities as listed in ANNEX V.
8. In accordance with the laws and regulations in force in the Republic of Kenya, the Government of the Republic of Kenya will take necessary measures to supply or replace, at its own expense, machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the Equipment provided by JICA under II-2 above.
9. In accordance with the laws and regulations in force in the Republic of Kenya, the Government of Kenya will take necessary measures to meet the running expenses necessary for the implementation of the Project.

IV. ADMINISTRATION OF THE PROJECT

1. The Permanent Secretary, the Ministry of Education (hereinafter referred to as "MOE"), as the Project Director, will bear overall responsibility for the administration and implementation of the Project.
2. Education Secretary, MOE, as the National Project Coordinator, will coordinate the administration of the Project.
3. Director/Board of Governors, CEMASTEPA, as the Technical Project Manager, will be responsible for the technical matters of the Project.
4. The Japanese Chief Advisor dispatched by JICA will provide necessary recommendations and advice to the Project Director, the National Project Coordinator, and the Technical Project Manager on any matters pertaining to the implementation of the Project.
5. The Japanese experts dispatched by JICA will give necessary technical guidance and assistance to the Kenyan counterpart personnel on technical matters pertaining to the implementation of the Project.
6. For the effective and successful implementation of technical cooperation for the Project, a Joint Coordinating Committee, National Planning Committee and District Planning Committees will be established, whose functions and composition are

described in Annex VI.

V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by JICA and the Kenyan authorities concerned, at the middle and during the last six months of the cooperation term in order to examine the level of achievement.

VI. CLAIMS AGAINST JAPANESE EXPERTS

In accordance with the provision of Article VI of the Agreement, the Government of the Republic of Kenya undertakes to indemnify the Japanese experts who engage in technical cooperation of the Project, against claims, if any arises, which result from, occur in the course of, or otherwise are connected with the discharge of their official functions in the Republic of Kenya except for those arising from the wilful misconduct or gross negligence of the Japanese experts.

VII. MUTUAL CONSULTATION

There will be mutual consultation between JICA and the Government of the Republic of Kenya on any major issues arising from, or in connection with this Attached Document.

VIII. MEASURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE PROJECT

For the purpose of promoting support for the Project among the people of the Republic of Kenya, the Government of the Republic of Kenya will take appropriate measures to make the Project widely known to the people of the Republic of Kenya.

IX. TERM OF COOPERATION

The duration of the technical cooperation for the Project under this Attached Document will be five (5) years from January 1, 2009.

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ANNEX I MASTER PLAN

1. Project Purpose

(Kenya Component)

Quality of Mathematics and Science education at Primary and Secondary school levels in Kenya is strengthened through In-Service Education and Training (INSET).

(SMASE-WECSA Component)

Capability of INSET providers to implement “Activity, Student Centred, Experiment, and Improvisation / Plan, Do, See, and Improve” (ASEI/PDSI) based INSET in member countries is strengthened.

2. Outputs of the Project

(Kenya Component)

1. A system of National INSET for Regional Trainers is established at CEMASTEAA.
2. A system of Regional INSET and Regional workshop is established at Primary Teachers’ Training Colleges (PTTCs).
3. Existing system of cluster INSET is strengthened.
4. Secondary Mathematics and Science (M/S) teachers’ ASEI/PDSI practices in classroom are enhanced.
5. Role of CEMASTEAA as resource centre for M/S education is strengthened.

(SMASE-WECSA Component)

1. ASEI/PDSI based INSET providers from member countries are trained.
2. SMASE-WECSA network is strengthened.
3. Role of CEMASTEAA is strengthened as resource centre for M/S education in Africa.

3. Activities of the Project

(Kenya Component)

- 1-1 To assess INSET training needs of primary M/S teachers.
- 1-2 To develop manuals and materials for National/Regional/Cluster INSET.
- 1-3 To develop/review monitoring and evaluation tools for National/Regional/Cluster INSET.
- 1-4 To conduct National INSET for Regional Trainers at CEMASTEAA.
- 1-5 To organise workshops for PTTC Principals and Deans of Curriculum/Heads of M/S department on understanding of SMASE INSET & ASEI/PDSI classroom practices.
- 1-6 To carry out monitoring and evaluation on quality of National INSET.
- 1-7 To carry out monitoring and evaluation on impact of National INSET.

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- 2-1 To conduct national sensitisation workshop for District Education Officer (DEO), Quality Assurance and Standards Officer (QASO), Teacher Advisory Centre (TAC) Tutor.
- 2-2 To select Cluster Trainers.
- 2-3 To provide PTTCs with training materials/apparatus as necessary for regional INSET and workshop.
- 2-4 To develop the workshop contents and materials by CEMASTEAA.
- 2-5 To organise Regional workshops.
- 2-6 To conduct Regional INSET for Cluster Trainers at PTTCs.
- 2-7 To carry out monitoring and evaluation on quality of Regional INSET.
- 2-8 To carry out monitoring and evaluation on impact of Regional INSET.

- 3-1 To provide training materials/apparatus as necessary for Cluster INSET and District Workshop.
- 3-2 To conduct Cluster INSET.
- 3-3 To conduct District workshop.
- 3-4 To carry out monitoring and evaluation on quality of the cluster INSET.
- 3-5 To carry out monitoring and evaluation on the impact of cluster INSET and ASEI/PDSI classroom practices.
- 3-6 To develop handbook on management of primary INSET system in accordance with MOE policy.

- 4-1 To assess the current situation of M/S teachers' ASEI/PDSI classroom practices
- 4-2 To develop INSET content for lesson study.
- 4-3 To assess the current situation of capacity of school leadership on supervision of ASEI/PDSI classroom practices.
- 4-4 To develop workshop content for principals.
- 4-5 To conduct National workshop for selected principals.
- 4-6 To conduct District workshop for all principals.
- 4-7 To carry out monitoring and evaluation on ASEI/PDSI classroom practices.

- 5-1 To publish newsletters, manuals and reports.
- 5-2 To establish networks with agencies/institutions involved in related activities.
- 5-3 To organise symposia on good ASEI/PDSI classroom practices.

5-4 To compile good practices of ASEI/PDSI and disseminate.

(SMASE-WECSA Component)

- 1-1 To assess the current situation and needs of INSET systems in SMASE-WECSA member countries.
- 1-2 To review and develop the Third Country Training Program (TCTP) course content for mathematics and science educators from SMASE-WECSA member countries.
- 1-3 To review and develop training manuals and materials for the TCTP.
- 1-4 To train INSET providers from SMASE-WECSA member countries.
- 1-5 To offer technical support in the construction and strengthening of INSET system for mathematics and science education for member countries.
- 1-6 To monitor and evaluate the quality of TCTP.
- 1-7 To monitor and evaluate the impact of TCTP.

- 2-1 To sensitise officials of education ministries in member countries on ASEI-PDSI classroom practices as need arises.
- 2-2 To conduct technical exchange visits with member countries as need arises.
- 2-3 To promote joint workshops with member countries as need arises.
- 2-4 To organise and participate in SMASE-WECSA Regional conferences and delegates meetings.
- 2-5 To participate in relevant regional and international conferences and other activities.

- 3-1 To establish / strengthen networks with Regional and International organisations involved in related activities.
- 3-2 To collect materials and reference books for SMASE-WECSA activities.
- 3-3 To establish/equip a library.
- 3-4 To disseminate information on SMASE-WECSA activities through the website, newsletters and other publications.

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ANNEX II LIST OF JAPANESE EXPERTS

1. Long-term Experts

- (1) Chief Advisor
- (2) Academic Advisor
- (3) Coordinator
- (4) Experts in the field of:
 - a. Mathematics Education
 - b. Science Education

2. Short-term Experts

Short-term experts will be dispatched when necessity arises.

Note: Each long-term expert could concurrently act as expert in another field, if necessary.



ANNEX III LIST OF MACHINERY AND EQUIPMENT

1. Essential Materials for Mathematics and Science Education

2. Equipment for the common and general use

Note:

1. The above-mentioned equipment and material is limited to equipment and material necessary for the transfer of technology by the Japanese experts and for implementing INSET activities at the national, regional and cluster levels.
2. The contents, specifications and quantity of the above-mentioned equipment to be provided each year will be discussed every year between the Japanese experts and the Kenyan counterpart personnel based on the annual plan of the Project, within the allocated annual budget for the Project.



ANNEX IV LIST OF KENYAN COUNTERPART AND ADMINISTRATIVE PERSONNEL

1. Counterpart Personnel

(1) National (Primary / Secondary)

a) Education Secretary, MOE (National Project Coordinator)

b) Director, CEMASTEА 1 post (Technical Project Manager)

c) Deputy Director, CEMASTEА 1 post

d) Dean of Studies, CEMASTEА 5 posts

e) Head of Department, CEMASTEА 5 posts

f) Lecturer, CEMASTEА 48 posts

(2) Regional (Primary)

a) Principals of 19 PTTC (Regional INSET Centre)

b) Deans of Curriculum / HOD of 19 PTTC

c) Regional Trainers (PTTC Tutors)

(3) District (Primary / Secondary)

a) District Education Officers in Districts

b) Provincial/District/Zonal QASOs in charge of SMASE

c) Head Teachers of the District INSET Centres

d) Representative of Head Teachers Association in Districts

e) District Trainers Representative 1 post per one District INSET Centre

f) District Trainers posts depending on number of centres

g) Selected Secondary School Principals

(4) Cluster (Primary)

a) TAC Tutors posts depending on number of zones

b) Cluster Trainers posts depending on number of centres

c) Head Teachers of the Cluster Schools

2. Administrative Personnel

(1) Non-Academic Staffs at CEMASTEА

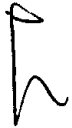
(2) Administrative Personnel at the Regional INSET Centres

(3) Administrative Personnel at the District INSET Centres

(4) Administrative Personnel at the Cluster INSET Centres

ANNEX V LIST OF LAND, BUILDINGS AND FACILITIES

1. Land, buildings and facilities necessary for the implementation of the Project
2. Rooms and facilities necessary for the installation and storage of the equipment in selected schools/venues in Districts
3. Offices and necessary facilities for the Japanese experts and Kenyan personnel
4. Other facilities mutually agreed upon as necessary for the implementation of INSET



ANNEX VI ROLES OF VARIOUS COMMITTEES

I. Joint Coordinating Committee (JCC)

The Joint Coordinating Committee, which consists both of the Japanese and Kenyan sides, will be established for the smooth and effective implementation of the Project.

1. Functions

The Joint Coordinating Committee will meet at least once a year or whenever the necessity arises, in order to fulfil the following functions:

- (1) To approve the Annual Plan of Operation of the Project
- (2) To review the overall progress of the Project and achievement of the technical cooperation.
- (3) To make decisions on major issues arising from or in connection with implementation of the Project.

2. Composition

(1) Members

a) The Kenyan side

Permanent Secretary, MOE (Chair)

Education Secretary, MOE

Directors of Education, MOE

Chief Finance Officer, MOE

Director, External Resource Department, Ministry of Finance

Secretary, Teachers' Service Commission

Representative, Provincial Director of Education

Chairman, Board of Governors, CEMASTE A

Director, CEMASTE A (Secretary)

b) The Japanese side

Chief Representative, JICA Kenya Office

Chief Advisor

Members of JICA study team, to be dispatched when necessary

Officials of the Embassy of Japan in Kenya may attend the Joint Coordinating Committee meetings as observer(s).

Other member(s) accepted by the Chair, as necessary

II. National Planning Committee

The National Planning Committee will run the project on a daily basis.

1. Functions

- (1) To make annual working plan on the basis of the Plan of Operation
- (2) To monitor the progress of the project activities
- (3) To take responsibilities for project's procurement
- (4) To take daily administrative responsibilities of the Project
- (5) To manage INSET
- (6) To manage workshops
- (7) To manage SMASE-WECSA activities

2. Composition

CEMASTEА:

Director

Deputy Director

Deans of Studies

JICA Experts:

Chief Advisor

Coordinator

III. District Planning Committee

Main responsibility of DPC is to make District Annual Work Plan and to manage SMASE INSET activities.

1. Functions include the following:

- (1) To manage funds for SMASE activities in the District
- (2) To prepare and implement budget for INSET and WS
- (3) To sensitize stakeholders in the district on the project activities
- (4) To prepare annual financial expenditure and SMASE training reports, and submit to the MOE and copy to CEMASTEА, District Heads Associations and PDE

- (5) To recruit trainers
- (6) To ensure INSET Centers are functional
- (7) To take custody of INSET materials and equipment at the INSET Center
- (8) To vet and appraise Trainers on their performance
- (9) To invite teachers, principals and QASOs for training
- (10) To monitor and ensure attendance by the teachers and headteachers for the training and workshops
- (11) To give feedback to TSC on district training

2. Composition

District Education Officer

District SMASE Coordinator (Secondary D-QASO)

District SMASE Coordinator (Primary D-QASO)

Principal of District INSET Center

Principal of PTTC

Representative, Regional Trainers

Chairperson of District, Kenya Secondary Schools Head Teachers' Association

Chairperson of District, Kenya Primary Schools Head Teachers' Association

District Trainers' representative

Representative, Z-QASO

Representative, TAC Tutor

Representative, CT

Representative, TSC (staffing officer)

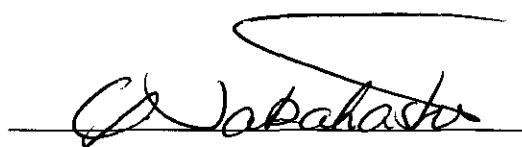
Representative, Cluster School Headteachers

**MINUTES OF MEETINGS BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY AND
AUTHORITIES CONCERNED OF THE GOVERNMENT OF
THE REPUBLIC OF KENYA ON
JAPANESE TECHNICAL COOPERATION FOR
THE STRENGTHENING OF MATHEMATICS AND SCIENCE
EDUCATION (SMASE) PROJECT**

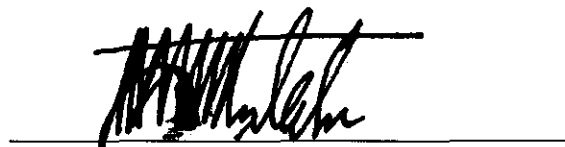
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As a result of the discussions, both sides agreed to summarize the matters referred to in the document attached hereto as a supplement to the Record of Discussions.

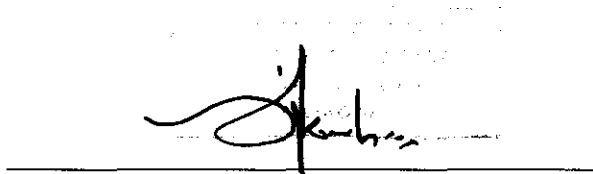
Nairobi, 28th November, 2008



Mr. Yoshiyuki Takahashi
Chief Representative,
Kenya Office,
Japan International Cooperation Agency,
Japan



Prof. Karega MUTAHI
Permanent Secretary,
Ministry of Education,
The Republic of Kenya



Mr. Joseph K. Kinyua
Permanent Secretary,
Ministry of Finance,
The Republic of Kenya

ATTACHED DOCUMENT

The discussions were held at Nairobi with the participants listed below:

Kenyan Side

Ministry of Education

Prof. Karega Mutahi	Permanent Secretary
Prof. George Godia	Education Secretary
Mr. Enos Oyaya	Director, Quality Assurance and Standards
Mrs. Leah K. Rotich	Director, Basic Education
Mr. M. S. Twahir	Senior Deputy Director, Basic Education
Mrs. C.A. Ondiek	Senior Deputy Director, Secondary Education
Mr. Gabriel Lengoiboni	Secretary, Teachers Service Commission
Mr. Majani Alex Tom	Senior Assistant Director, Quality Assurance and Standards
Mr. Robert M. Omosa	Assistant Director, Education / SMASSE Desk Officer
Mr. Simiyu Njalale	Representative, Chief Finance Officer
Mr. Boniface N. Gitau	Provincial Director of Education, Nairobi
Mr. P. M. Makite	Provincial Director of Education, North Eastern
Mr. K. K. Misoi	Provincial Director of Education, Western
Mr. H. I. Kiburu	Provincial Quality Assurance and Standards Officer, Central
Mr. Francis M. Muraya	Provincial Quality Assurance and Standards Officer, Eastern
Mr. Francis C. Shikanda	Provincial Quality Assurance and Standards Officer, Rift Valley
Mr. John Owino	District Education Officer, Busia District
Mr. Kilonzo Musilu	District Education Officer, Thika District
Ms. Florence Kisirkoi	Deputy Director, Field Services, Kenya Institute of Education
Mr. William Mwita	Course Coordinator, Kenya Education Staff Institute
Mr. P. M. Miano	Kenya National Examinations Council
Mr. George Kirimi	Principal, Murang'a TTC
Mr. Isaac K. Mwangi	Principal, Thogoto TTC
Mr. Vitalis O. Gode	Tutor, Kilimambogo TTC
Mr. Kariuki D. Gichuki	Tutor, Murang'a TTC
Ms. Wainaina Wairimu	Tutor, Murang'a TTC
Ms. Lydia W. Magu	Tutor, Thogoto TTC
Mr. Joseph Njuguna Ruth	TAC Tutor, Kiambu East
Ms. Damaris N. Ndura	Key Resource Teacher, Machakos Primary School
Ms. Emma M. Mbutia	Key Resource Teacher, Ayany Primary School, Nairobi

Centre for Mathematics, Science and Technology Education in Africa (CEMASTEAM)

Prof. Samuel K. Katia	Chairman, Board of Governors
Mrs. Peula Lelei	Director



Mr. Michael Waititu	Subject Administrator, Physics / Chair of M&E Task Force
Mr. Kithaka Njogu	Subject Administrator, Mathematics / Chair of Editorial Board
Mrs. Lynette Kisaka	Subject Administrator, Biology / Secretary of SMASE-WECSA
Mr. Patrick Kogolla	Subject Administrator, Chemistry/Coordinator, Primary INSET

Japanese Side

JICA Kenya Office

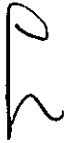
Mr. Yoshiyuki Takahashi	Chief Representative
Mr. Kyosuke Kawazumi	Senior Representative
Ms. Tomoko Maekawa	Representative
Mr. Samuel K. Kibe	Consultant (Education)

The Project Team

Mr. Keiichi Naganuma	Expert, Chief Advisor/ Project Coordinator
Ms. Hazuki Uchiyama	Expert, Science Education
Mr. Noriaki Tanaka	Associate Expert

As a result of discussions, both sides agreed that the Project Document is for rationalising and justifying the plan and the implementation of the Project as attached herewith.

ANNEX Project Document

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The Republic of Kenya

PROJECT DOCUMENT

FOR

**STRENGTHENING OF MATHEMATICS AND
SCIENCE EDUCATION (SMASE)**

Prepared by:

Ministry of Education, Kenya

and

Japan International Cooperation Agency, Japan

November 2008



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MAP OF AFRICA (SMASE-WECSA Member Countries)

SMASE WECSA Association (as of Oct 2008)

Member Countries (24)	Observer Countries (10)
Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Ethiopia, Gambia, Ghana, Kenya, Lesotho, Malawi, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Swaziland, Tanzania, Uganda, Zambia, Zanzibar, Zimbabwe	Congo, Cote d'Ivoire, Egypt, Madagascar, Mali, Mauritius, Namibia, Seychelles, South Africa, Sudan



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LIST OF ABBREVIATIONS AND ACRONYMS

ASEI	Activity, Student Centred, Experiment, and Improvisation
BoG	Board of Governors
CEMASTEIA	Centre for Mathematics, Science and Technology Education in Africa
CT	Cluster Trainer
DEO	District Education Officer
DPC	District Planning Committee
FPE	Free Primary Education
FSE	Free Secondary Education
HOD	Head of Department
INSET	In-Service Education and Training
JICA	Japan International Cooperation Agency
KCPE	Kenya Certificate of Primary Education
KCSE	Kenya Certificate of Secondary Education
KESSP	Kenya Education Sector Support Programme
KRT	Key Resource Teacher
KSh	Shillings (Kenya Currency)
M&E(TF)	Monitoring and Evaluation (Task Force)
MOE	Ministry of Education, Kenya
MOU	Memorandum of Understanding
M/S	Mathematics and Science
PDM	Project Design Matrix
PDSI	Plan, Do, See, and Improve
PTTC	Primary Teachers' Training College
QASO	Quality Assurance and Standards Officer
R/D	Record of Discussions
RT	Regional Trainer
SbTD	School based Teacher Development
SMASE	Strengthening of Mathematics and Science Education
SMASSE	Strengthening of Mathematics and Science in Secondary Education
TAC	Teacher Advisory Centre
TCTP	Third Country Training Programme
TICAD	Tokyo International Conference for African Development
TSC	Teachers' Service Commission
WECSA	Western, Eastern, Central and Southern Africa
W/S	Workshop

1. EXECUTIVE SUMMARY

Project Title: Strengthening of Mathematics and Science Education (SMASE)

Country: The Republic of Kenya

Overall Goal:

(1) Kenya Component

Capability of young Kenyans in Mathematics and Science is upgraded.

(2) SMASE-WECSA Component

Quality of Teaching and Learning of Mathematics and Science in member countries is improved.

Project Purpose:

(1) Kenya Component

Quality of mathematics and science education at Primary and Secondary school levels in Kenya is strengthened through INSET.

(2) SMASE-WECSA Component

Capability of INSET providers to implement ASEI/PDSI based INSET in member countries is strengthened.

Coverage: Kenya (Entire Country) and SMASE-WECSA member countries

Duration: 5 years (January 2009 – December 2013)

Responsible Agency:

Ministry of Education, Kenya (MOE) – P.O. Box 30040, Nairobi

Contact Person: Prof. George I. Godia, Education Secretary

(Tel: +254-20-318581, Fax: 214287)

Implementation Body:

Centre for Mathematics, Science and Technology Education in Africa (CEMASTEAM)

Contact Person: Mrs. Peula Lelei, Director (Tel: +254-20-882632, Fax: 884756)

Target Groups:

(1-1) Kenya Component - Primary

60,000 Primary School Teachers who are teaching Mathematics and Science at grade 6,7 and 8.

20,000 Primary School Headteachers / Deputy Headteachers

5,600 Cluster Trainers

1,100 TAC tutors and 1,258 QASOs/Deputy QASOs (8 provincial, 150 district and 1,100 zonal)

320 PTTC tutors in 19 public PTTCs will be capacitated as Regional Trainers.

(1-2) Kenya Component - Secondary

6,485 Secondary School Principals

(2) SMASE-WECSA Component

INSET providers in 34 WECSA member countries

Outputs:

(1) Kenya Component

- A system of National INSET for Regional Trainers is established at CEMASTEAM.

- A system of Regional INSET and Regional Workshop is established at PTTCs.

- Existing system of Cluster INSET is strengthened.

- Secondary Mathematics and Science teachers' ASEI/PDSI practices in classroom are enhanced.

- Role of CEMASTEAs as resource centre for Mathematics and Science education is strengthened.

(2) SMASE-WECSA Component

- ASEI/PDSI based INSET providers from member countries are trained.
- SMASE-WECSA network is strengthened.
- Role of CEMASTEAs as resource centre for Mathematics and Science education in Africa is strengthened.

Activities:

(1) Kenya Component

- 1-1 To assess INSET training needs of primary M/S teachers.
- 1-2 To develop manuals and materials for National/Regional/Cluster INSET.
- 1-3 To develop/review monitoring and evaluation tools for National/Regional/Cluster INSET.
- 1-4 To conduct National INSET for Regional Trainers at CEMASTEAs.
- 1-5 To organise workshops for PTTC Principals and Deans of Curriculum/heads of M/S department on understanding of SMASE INSET & ASEI/PDSI classroom practices.
- 1-6 To carry out monitoring and evaluation on quality of National INSET.
- 1-7 To carry out monitoring and evaluation on impact of National INSET.

- 2-1 To conduct national sensitisation workshops for DEO, QASO, TAC Tutor.
- 2-2 To select Cluster Trainers.
- 2-3 To provide PTTCs with training materials/apparatus as necessary for regional INSET and workshops.
- 2-4 To develop the workshop contents and materials by CEMASTEAs.
- 2-5 To organise Regional workshops.
- 2-6 To conduct Regional INSET for Cluster Trainers at PTTCs.
- 2-7 To carry out monitoring and evaluation on quality of Regional INSET.
- 2-8 To carry out monitoring and evaluation on impact of Regional INSET.

- 3-1 To provide training materials/apparatus as necessary for Cluster INSET and District Workshops.
- 3-2 To conduct Cluster INSET.
- 3-3 To conduct District workshops.
- 3-4 To carry out monitoring and evaluation on quality of the cluster INSET.
- 3-5 To carry out monitoring and evaluation on the impact of cluster INSET and ASEI/PDSI classroom practices.
- 3-6 To develop handbook on management of primary INSET system in accordance with MOE policy.

- 4-1 To assess the current situation of M/S teachers' ASEI/PDSI classroom practices.
- 4-2 To develop INSET content for lesson study.
- 4-3 To assess the current situation of capacity of school leadership on supervision of ASEI/PDSI classroom practices.
- 4-4 To develop workshop content for principals.
- 4-5 To conduct National workshops for selected principals.
- 4-6 To conduct District workshop for all principals.
- 4-7 To carry out monitoring and evaluation on ASEI/PDSI classroom practices.

- 5-1 To publish newsletters, manuals and reports.
- 5-2 To establish networks with agencies/institutions involved in related activities.
- 5-3 To organise symposia on good ASEI/PDSI classroom practices.
- 5-4 To compile good practices of ASEI/PDSI and disseminate.

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(2) SMASE-WECSA Component

- 1-1 To assess the current situation and needs of INSET systems in SMASE-WECSA member countries
- 1-2 To review and develop TCTP course content for mathematics and science educators from SMASE-WECSA member countries
- 1-3 To review and develop training manuals and materials for the TCTP
- 1-4 To train INSET providers from SMASE-WECSA member countries
- 1-5 To offer technical support in the construction and strengthening of INSET system for mathematics and science education for member countries
- 1-6 To monitor and evaluate the quality of TCTP
- 1-7 To monitor and evaluate the impact of TCTP

- 2-1 To sensitise officials of education ministries in member countries on ASEI-PDSI classroom practices as need arises
- 2-2 To conduct technical exchange visits with member countries as need arises
- 2-3 To promote joint workshops with member countries as need arises
- 2-4 To organise and participate in SMASE-WECSA Regional conferences and delegates meetings
- 2-5 To participate in relevant regional and international conferences and other activities

- 3-1 To establish/strengthen networks with Regional and International organisations involved in related activities
- 3-2 To collect materials and reference books for SMASE-WECSA activities
- 3-3 To establish/equip a library
- 3-4 To disseminate information on SMASE-WECSA activities through the website, newsletters and other publications.



2. INTRODUCTION

Kenya's vision is to transform, by 2030, into a rapidly industrialising, middle-income nation, in which citizens enjoy high quality life in a clean and secure environment; an aspiration to meet the MDGs for Kenyans. Identified among the foundations upon which Vision 2030 is to be built are Science, Technology and Innovation (STI) and Human Resources Development (HRD). To this effect the Government of Kenya (GOK) commits to *'raising the quality of teaching of mathematics, science and technology in schools, polytechnics and universities'*¹. This is because the capability of students' in mathematics and science is still low given the performance in national examinations. Improvement of the Mathematics and Science Education is therefore a matter of urgency.

Towards this end, the GOK and the Government of Japan (GOJ) have jointly implemented a Technical Cooperation Project, the Strengthening of Mathematics and Science in Secondary Education (SMASSE) Project during the period 1998 to 2008. The Project was implemented in two phases I and II. Phase I, a trial study was conducted in 15 districts while Phase II scaled up the coverage to spread benefits accrued from piloting to all districts in the country. Through project activities a system of in-service training (INSET) for mathematics and science teachers in all secondary school was established at national and district levels.

The training comprised a total of 40 days of INSET sessions, implemented over a four-year period with 10 INSET days per year. This was cascaded from national to district level with appropriate modifications. Over 1,500 District Trainers and over 18,000 teachers were trained at national level and district level INSET respectively during the project period.

The National INSET centre was also strengthened as a resource centre for mathematics and science education in Kenya and other African countries. The Centre assumed the name 'Centre for Mathematics, Science and Technology Education in Africa' (CEMASTEA) in the year 2003 and gained fully-fledged institutional status through legal notice No. 96 published in the Kenya Gazette Supplement No. 45 of 23rd June 2006. The centre has direct budget line from the Ministry of Education (MOE) to fund day-to-day activities. It has an establishment of 60 Kenyan academic staff and about 45 support staff.

At district level, 108 INSET Centres have been established. Barring any unavoidable circumstances, each centre has sufficient number (12-16) of trainers who have basic knowledge and skills required for INSET provision, even though these need strengthening. About 80 District Planning Committees (DPC) have been established for management of the INSET system. Funding for District INSET has been factored into the Free Secondary Education (FSE) funding; collection and utilisation guidelines have been developed. Modalities of continued implementation of district INSET after project period has been issued by MOE.

During Phase II, a regional component of the project was implemented through which SMASSE Project's "Activity, Student Centred, Experiment, and Improvisation / Plan, Do, See, and Improve" (ASEI/PDSI) was spread to other African countries. This was done under the auspices of SMASE-WECSA Association. SMASE-WECSA was formed through the influence of SMASSE project in Kenya and brings together 34 African countries in an effort to address challenges facing mathematics and science education at basic education level. Over 700 trainers of ASEI/PDSI have been prepared for 27 member countries of the Association. In addition, sensitisation activities have been directed at senior education officials of member countries resulting efforts in several member countries at providing SMASSE-type INSET to mathematics and science teachers. CEMASTEAs staff provides technical assistance to these member countries in support of these efforts. Regional activities have been funded by JICA in collaboration with the GOK.

¹ Kenya Vision 2030: Government of the Republic of Kenya, 2007

In spite of major achievement through SMASSE Project phases I and II, major challenges still remain in the bid to provide quality mathematics and science education both in Kenya and SMASE-WECSA member countries. To this effect, the Government of Kenya requested the Government of Japan to provide further technical cooperation to implement 'Strengthening of Mathematics and Science Education (SMASE) Project' directed at addressing the challenges as described in later in this document.



3. BACKGROUND INFORMATION ON THE PROJECT

3.1 Overview of Socio-Economic Situation for Education Sector

In Kenya, poverty levels have not improved much even after the Structural Adjustment Programmes were implemented as suggested in Sessional Paper No.1 of 1986. However, the policy of the GOK is to continue providing both qualitative and quantitative education without regional and gender bias. It is the position of GOK that although education is not compulsory by law, every child has the right of access to education. This was implemented through GOK's declaration of Free Primary Education (FPE) in January 2003. The overall GOK plan focuses upon poverty reduction and wealth creation. The objective is to transform Kenya by 2030, into a rapidly industrialising, middle-income nation, in which citizens enjoy high quality life in a clean and secure environment, is actually an aspiration to meet the MDGs for Kenyans. Whereas this remains the position, certain challenges have to be overcome first. The challenges hinge on: alleviation of poverty, improving access, equity (teacher/pupil ratio) as well as the quality and relevance in education.

In a bid to overcome some of the challenges, cost sharing in education was introduced in 1988. In this system, the GOK provides teachers' salaries, develops curriculum, assures quality and standards and provides bursaries/loans. Parents on the other hand provide teaching/learning materials, physical infrastructure and other indirect costs. Cost sharing did not work well because the poverty levels in the country have continued to get worse. Nonetheless, the government continues to invest in quality education because that is the only way to transform the country. It is in this spirit that INSET for mathematics and science teacher was found necessary. Hence the need for a SMASE Project to entrench effective classroom practices in mathematics and science is a national priority and to extend ASEI-PDSI to primary schools to ensure a strong foundation is laid for the subjects. Secondly, as from January 2008, the government introduced FSE to improve transition rates from primary to secondary as well as completion rates of the secondary cycle.

3.2 Situational Analysis on Primary/Secondary Education including Mathematics and Science Education

3.2.1 Overview of Education System in Kenya

The current Education system is 8:4:4, which represents:

- 8 year primary school cycle intended to help learners to, among others, *acquire literacy, numeracy, creativity and communications skills, to enjoy learning and develop a desire to continue learning as well as to develop ability for critical thinking and logical judgment.*² The 8 years of education is free under the FPE initiated in 2003. At the end, an examination called Kenya Certificate of Primary Education (KCPE) is offered to determine who goes to secondary. 59.3% of the standard 8 graduates transitioned to secondary schools in 2007 due to limited capacity.
- 4 years at secondary level catering for learners between the ages of 14 to 17 years. It is intended to broaden their knowledge and experiences from basic level and prepare them for the world of work. Secondary education is partially funded by GOK through the Free Secondary Education Funds and employment of teachers. At the end of this cycle, candidates take the Kenya Certificate of Secondary Education (KCSE) examinations. Results of this exam determine who goes to the University. The transition rate to tertiary level institutions is about 10%.
- 4 years of University Education. Those who pass the examinations get the Bachelors degrees and can opt to pursue postgraduate studies or job market.

² Kenya Institute of Education: Primary Education Syllabus

3.2.2 Primary Education

Primary schools cater for children between the ages of 6 to 13 years. There currently are over 18,000 public primary schools with an enrolment of over 8.2 million children as shown in tables below. In December 2002 the total enrolment in public primary schools was 5.9 million children but this shot up as a result of FPE introduced in 2003.

The massive additional enrolment is already putting a lot of pressure on existing resources and on teachers given that teacher population (171,643 in 2007) has remained more or less the same. Hence, each school has an average of 9 or 10 teachers and 450 students, meaning that most of primary schools are one-stream schools (1 grade has 1 classroom). The student teacher ratio in primary schools is 44.2: 1, however in some districts, teachers have to provide education to class sizes of 100 students and more thus raising serious concerns on quality.

Table 1. Number of Primary Schools (2003-2007)

	2003	2004	2005	2006	2007(Provisional)
Public	17,697	17,804	17,807	17,946	18,063
Private	5,857	6,839	7,546	7,983	8,041
Total	23,554	24,643	25,353	25,929	26,104

(Economic Survey, Government of Kenya, 2008)

Table 2. Number of Public Primary School Teachers (2007)

		Male	Female	Total
Trained Teachers	Graduate	608	470	1,078
	Approved	23,033	20,135	43,168
	S1(Diploma)	7,060	7,527	14,587
	P1 (PTTC)	54,741	44,250	98,991
	P2	6,805	5,213	12,018
	P3	809	992	1,801
TOTAL		93,056	78,587	171,643
Untrained Teachers				
TOTAL		1,208	306	1,514
GRAND TOTAL		94,264	78,893	173,157

(Economic Survey, Government of Kenya, 2008)

Table 3. Enrolment in Primary Schools (2003-2007, Number/1000)

Grade	2003		2004		2005		2006		2007 (Provisional)	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
1	679.0	632.7	646.2	606.2	620.4	585.8	593.2	568.1	638.9	604.2
2	526.4	492.0	588.3	551.1	575.8	551.6	555.1	534.8	597.9	568.8
3	490.8	454.4	493.9	459.8	549.2	517.5	542.5	519.7	584.3	552.8
4	475.7	446.9	477.7	445.7	493.7	469.9	531.8	508.7	572.8	541.0
5	436.0	418.8	444.0	402.5	449.1	410.8	456.7	442.1	492.0	470.2
6	400.9	392.3	418.8	399.9	429.3	413.6	430.8	417.9	464.0	444.4
7	383.2	378.9	412.6	404.9	443.0	430.0	453.0	442.0	487.9	470.1
8	282.4	269.1	334.0	309.1	342.1	309.6	333.5	302.3	379.2	360.8
Total	3,674.4	3,485.1	3,815.5	3,579.3	3,902.7	3,688.8	3,896.6	3,735.5	4,217.1	4,012.2
G Total	7,159.5		7,394.8		7,591.5		7,632.1		8,229.3	

(Economic Survey, Government of Kenya, 2008)

The FPE has led to an improvement in the supply of teaching/learning materials to schools but has also had many challenges in quality education.

Performance in mathematics and science in the national examinations at the end of the primary school cycle; the Kenya Certificate of Primary Education (KCPE), is more or less average by Kenyan standards. However, given the universally accepted benchmark for minimum learning

achievement level (MLAL) and Desired Learning Achievement Level (DLAL) as 50% and 70% respectively, students' achievement in mathematics and science is just at the minimum and well below the desired. Results for the 3 years 2004-2006 are illustrated in the table below.

Table 4. Mean Scores in KCPE (%) 2004-6

Subject	Mean Score (%)			
	2004	2005	2006	2007
Mathematics	49.59	46.90	53.94	
Science	49.93	50.76	53.02	

(Kenya National Examinations Council and Directorate of Quality Assurance and Standards)

According to the Kenya National Examinations Council (KNEC), KCPE is considered accurate in measuring learners' abilities given that majority of learners who do well and proceed to secondary generally perform well in the Kenya Certificate of Secondary Education (KCSE) at the end of the secondary cycle. However SMASSE has noted from INSET experiences that secondary school mathematics and science teachers commonly complain that students entering form 1 after passing KCPE with very good grades do not necessarily display a commensurate competency. This, they relate to the fact that KCPE is a multiple-choice exam that does not necessarily require candidates to demonstrate understanding of subject matter by showing how they arrive at the answer or explaining their choices.

3.2.3 Secondary Education

Secondary schools cater for children between the ages of 14 to 17 years. There are 6,485 secondary schools with an enrolment of over 1,180,267 students in 2007 as shown in the tables below. The total enrolment in public secondary schools was 882,513 in 2003 but this shot up as a result of FPE introduced in 2003 and FSE in 2008. The student teacher ratio in public secondary schools is 23.3: 1 in 2007.

Table 5. Number of Secondary Schools (2003-2007)

	2003	2004	2005	2006	2007 (Provisional)
Public	3,583	3,552	3,621	3,646	4,245
Private	1,490	1,590	1,773	2,013	2,240
Total	5,073	5,142	5,394	5,659	6,485

(Economic Survey, Government of Kenya, 2008)

Table 6. Enrolment in Secondary Schools (2003-2007)

	2003	2004	2005	2006	2007 (Provisional)
Boys	462,750	490,506	494,157	546,072	638,690
Girls	419,763	435,644	439,992	484,008	541,577
Total	882,513	926,150	934,149	1,030,080	1,180,267

(Economic Survey, Government of Kenya, 2008)

Table 7. Number of Public Secondary School Teachers (2003-2007)

		2003	2004	2005	2006	2007 (Provisional)
Trained	Graduate	30,487	30,328	30,363	33,499	35,003
	Approved	12,279	12,902	12,840	7,972	8,329
	S1 (Diploma)	1,636	2,589	2,576	169	177
	Technical	390	660	657	543	567
Trained Total		44,792	46,479	46,436	42,183	44,076
Untrained Total		2,242	1,105	999	220	229
Total		47,035	47,584	47,435	42,403	44,305

(Economic Survey, Government of Kenya, 2008)

The FPE and FSE have led to an improvement in the supply of teaching/learning materials to

schools but have also still many challenges under the following areas:

(a) Teaching/learning materials

In Kenya, teaching/learning resources are inadequate and at times not available. Situation is gradually being improved through a programme where needy schools are identified in every district and supplied with laboratory equipment and materials. The FSE Programmes promises to improve this situation because funds have been allocated for purchase of teaching/learning resources and are to be utilized much along the same line as the fairly successful initiative for FPE.

(b) Teachers

The common problems facing Kenya is inadequate number mathematics and science teachers. This is rather unique situation in that the country has a fairly large reserve of qualified but unemployed teachers of the subjects. These however cannot be employed because of the freeze in employment in the public sector. It's only those that leave due to natural attrition that are replaced thus keeping the numbers more or less the same in spite of increased enrolments. The issue of very few Mathematics and Science female teachers is common in all WECSA member countries. Teachers' negative attitude towards Mathematics and Science eventually influences the same into the learners.

(c) Learners

Students dislike some subjects especially Mathematics and Sciences. Some display negative attitude in learning and attending school. Poverty and family misunderstanding affect the teaching and learning in many of the countries. Over-enrolment in school is a common problem for many countries.

(d) Administration

The administrative processes of provision and maintenance of physical facilities, curriculum instruction, student and staff development and financial management are poor. Lack of resource prioritization manifests itself in school projects that do not target provision of basic teaching/learning requirements but rather on secondary issues. In Kenya, SMASSE has sought to rectify this situation through workshops on resource mobilisation, prioritisation and utilisation for education managers.

Table 8. Free Secondary Education Fund

Vote head	Amount/KSh
Tuition	3,600
Repairs, maintenance and improvement	400
Local Travel and Transport	400
Administration costs	500
Electricity, water and conservancy	500
Activity Fees	600
Personal Emoluments	3,965
Medical	300
Total school Fees per child	10,265

Interim Guideline for the Implementation of Free Secondary Education, MOE, Jan. 2008

3.2.4 Problems facing the education sector in Kenya (especially Mathematics and Science)

Studies undertaken by Kenya Institute of Education (KIE) and SMASSE Project indicate the following as the current problems facing the education sector in Kenya,

- Under-staffing in some areas of curriculum; there is a deficit of approximately 60,000 teachers
- Inadequacy of teaching/learning facilities and materials,
- An overloaded curriculum

- Teachers' morale
- Examination oriented teaching/learning
- Students' low morale
- Inappropriate teaching used by teachers
- Lack of integration of theory and practical work
- Education management factors
- Resource mobilization and prioritization

3.3 Situational Analysis on In-Service Education & Training

In KESSP, MOE acknowledges the success of the FPE initiative and that the achievement of EFA will largely depend on having a well trained, well educated and highly motivated teaching force. It however recognises the fact that quality of teaching by primary teachers is compromised by the fact that 2 year pre-service training isn't adequate for the acquisition of adequate subject content mastery and pedagogical skills in all the 7 subjects the teachers are expected to teach. INSET is also indicated as inadequate. KESSP thus points out that establishment of an effective professional development programme for teachers is essential if continuous and sustainable improvement of the quality of education is to be realised. What it describes as dynamic, responsive, and well coordinated system of INSET to equip teachers with necessary with skills and capacities is required. In developing such a programme, the Ministry promises to utilize experiences and lessons that have emerged from past projects.

The ministry identifies the following among several key challenges and issues facing in-service teacher education:

- 1) Strengthening and mandating the INSET Unit within the Ministry to coordinate all the in-service training programmes nationally.
- 2) Reviewing existing INSET activities, distilling lessons of previous experiences of INSET and harmonising the various models of practice. Priority is to move to more child-centred learning models as key to quality improvement. All future INSET will pay special attention to ensuring that the skills acquired through INSET are learner-centred and reflected in the teacher's practice in the classroom;

The many initiatives at primary school have targeted improvement of both school administration and classroom practices. The initiatives have also developed basic INSET provision systems as well as facilities. INSET targeting teacher classroom practices have more or less been on school-based mode of delivery. The major challenge in INSET provision for primary school teachers lies in the numbers; they are over 170,000. It has thus been difficult to effectively reach all of them. The latest attempt at addressing teacher classroom practices on subject specific areas has been the School-based Teacher Development (SbTD) programme. This programme built on an INSET system developed earlier on by Strengthening Primary Education (SPRED). It used the Teacher Advisory Centres (TAC) and TAC Tutors to develop a group of school-based mentors known as Key Resource Teachers (KRTs) in English Language, Mathematics, Science, Kiswahili, Guidance and Counselling and Social Studies. This programme implemented on a distance education basis, successfully developed KRTs whose lesson implementation skills were generally improved. They are expected to organise school based induction sessions for colleague teachers on their subject areas of training. A study the Ministry conducted in 2005³ on the impact of the programme indicated that only 11% of KRTs had conducted formal INSET for other teachers as a one-time activity rather than the intended on-going basis. 41% had carried out informal INSET activities while about ¼ of them had not organised any activity. The major challenge not effectively

³ The Report by Frank Hardman

delivering school-based-training was heavy teacher-workload. The study recommended among others, that:

- Official INSET days should be set aside during the school year when pupils are not in attendance
- SbTD model which already had a national outreach could be built on
- Cascade model should be formalised with time and resources set aside throughout the year for KRTs to train other teachers

3.4 Government Policy and Strategy on Education Sector Development

The GOK projects that the country will be a rapidly industrialising, middle-income nation by 2030. To attain this target it becomes inevitable that GOK strengthens its Mathematics and Science Education base by re-sharpening of teachers through regularized INSET system.

3.4.1 Master Plan for Education and Training (MPET) 1997-2010

To raise relevance and quality in Secondary Education, MPET clearly stipulates that it should do this by evolving appropriate pre-service and in-service training at provincial/district, school, and teacher level. Regularisation of INSET is emphasised.

3.4.2 National Development Plan 2003-2008

This paper defines education as pre-condition for national development. However, it says that there is a tendency of deterioration of education quality. It also points out lack of relevance of education to social needs. In order to improve these problems, it recommends comprehensive education sector reform as shown below.

1) Primary Education:

Target was attained as FPE in January, 2003.

2) Secondary Education

The paper stresses access, quality, relevance and management in this sector. The measures to be taken to improve these issues are more support for bursary, more construction of day schools, strengthening of English, Mathematics and Sciences, strengthening of inspectorate, revision of Education Act, enhancement of private schools, rehabilitation and expansion of existing schools.

3) Pre-Primary Education

Within this plan period, 50% of children between 0 and 6 years old will be targeted to enroll pre-Primary Education. In order to achieve the target, strengthened partnership among stakeholders in community, strengthening of management, increased access for handicapped children, better care of children below 3 years old, and formulation of guideline for Pre-Primary Education facilities will be enhanced.

3.4.3 Sessional Paper No. 1 of 2005: Policy Framework on Education & Training

The latest initiative to refocus education and training was in the form of a National Conference on Education and Training held in Nairobi in November 2003. The outcome of the conference is Sessional Paper No. 1 of 2005: Policy Framework on Education, Training and Research, which was passed by parliament in 2005. It spells out policies and a wide range of strategies to address access, equity, quality, relevance and efficiency in the management of education resources in the country for the foreseeable future.

3.4.4 The Kenya Education Sector Support Programme (KESSP) of 2005

MOE developed a comprehensive framework for programme implementation; the Kenya Education Sector Support Programme (KESSP) covering the period 2005-2010 to operationalize the budget for prioritized programmes, to ensure that the goals and objectives spelt out in policy documents are attained.

The quality of teaching/learning is being addressed in several of the 23 investment programmes of the KESSP through comprehensive INSET programmes for teachers in primary, secondary and teacher training colleges. At secondary school and diploma teacher training levels, INSET for mathematics and science teachers is covered as the 17th investment programmes while INSET for primary education is addressed in the 10th programme.

3.4.5 Kenya Vision 2030: A Globally Competitive and Prosperous Kenya

The vision is to transform, by 2030, into a rapidly industrialising, middle-income nation, in which citizens enjoy high quality life in a clean and secure environment. It is actually an aspiration to meet the MDGs for Kenyans. In the vision, Science, Technology and Innovation (STI) and Human Resources Development (HRD) are identified among the foundations upon which it is to be built. To this effect the GOK commits to raising the quality of teaching of mathematics, science and technology in schools, polytechnics and universities.

3.5 Education Sector Development Initiatives Undertaken by the Government and Development Partners in the Past and Present

The following are some of the initiatives GOK in collaboration with development partners have undertaken.

3.5.1 Primary Section

1) PRISM-Primary School Management Project (DfID):

PRISM⁴ aimed filling the training gap in management of primary school and to put in place a sustainable system for in-service management training and development. It sought to improve the quality of primary education through the training and support of headteachers in practical management skills. The project implemented between 1996 and 2000 was a joint effort of GOK and the UK Department for International Development (DfID).

PRISM targeted 9,000 headteachers in 42 disadvantaged districts (ASAL) and 3,000 heads from pockets of poverty within non-targeted districts. It was planned that the remaining 4,700 headteachers would also be able to access the training through voluntary participation funded by district and community cost-sharing. In this way the national total of approximately 16,700 headteachers was targeted by PRISM.

It was assumed that improved management skills would assist headteachers to provide the professional leadership necessary to improve the quality of teaching and learning, and to more effectively manage the mobilisation and accountability of community funds. National and international commitment to the decentralisation of school management underpinned this strategy. It was also envisaged that a decentralized INSET system would be established during the lifetime of the project and that this would be sustainable at low cost to the MOE in future years.

Reflecting the decentralisation priorities established for the MOE the PRISM implementation strategy was based upon a cascade model of management training. This consisted of 3 main levels:

- a) A Lead Team of 11 educationalists established to train 88 Regional Trainers.
- b) Regional Trainers to train 1,200 Zonal Inspectors.
- c) Regional Trainers and Zonal Inspectors to train 12,000 primary school headteachers.

Kenyan and British consultants were engaged to assist the Lead Team in the production of training materials and in the development of their own training skills. Six Training Centres (pre-service teacher training colleges) were originally identified as venues for the trainer and headteacher

⁴ Extract from MOEST(October 2000): PRISM Research And Evaluation- Synthesis Report 1996-2000

training courses. Three courses were designed around collectively identified skills and competencies.

1. Regional Trainers Course (April, 1996)

Four weeks training, two weeks assignment at post, four weeks practice training.

2. Zonal Trainers Course (August – December, 1996)

Three weeks training, two weeks assignment at post, two weeks practice training.

3. Headteacher Training Course (Ongoing from January, 1997)

Three weeks training, six months to develop a school plan, one week recall.

2) SPRED (DFID)/School based Teacher Development (SbTD)

School based INSET in all districts for English, Mathematics and Science teachers

The periods of each phase of SPRED were:

SPRED 1: 1991 – 1996

SPRED 2: 1997 – 2000

SPRED 3: 2000 – 2005

SPRED 1 from 1991 to 1996, INSET to improve quality of teaching and learning was implemented with 3 main subjects. TACs were established in each district for purposes of implementing the project; one Resource Centre in each district with 5 TAC tutors was also established to be training centre and library's function for in-service teachers.

However, in SPRED1 TAC was not successful to be a part of Kenyan primary education system. Head teachers and QASO were not so involved, and there was no system to provide the qualification/certificate/promotion for TAC tutors as a career. As a result the project couldn't provide motivation for TAC tutors. It was also not enough to combine INSET and PRESET. A major weakness was that British experts formulated the project and not enough coordination was sought with local people. Outputs and lessons from SPRED 1 were:

1. Training by cascade system, a top-down approach, entails a lot of waste in terms of quality and quantity. A "bottom-up" based training would remedy the inadequacies.
2. Excellent experts from out of the country are cost-effective, but they do not help local capacity building.
3. Since projects influence the improvement/development of sector structure/systems, they must be carefully planned.
4. In the development of KRT, there were more females than males, thus gender problem was effectively dealt with.
5. In primary education, before projects can be effective, problems of poverty and food shortages lead to much inequality in access.

The following effects were realized:

1. 63 TACs were established.
2. 1,200 TAC tutors' special skills were developed.
3. Libraries (national book-box scheme) were established.
4. Gender awareness was raised.

The object of SPRED 2 was to increase students to reach grade 8. That includes: Capacity Development of MOE, distribute of book-boxes reading books in English to each district resource centre, and bringing information database of school information to remote schools, etc. In however due to mismanagement and system inefficiencies a lot of resources were dissipated. At that time, DfID was almost the only one donor supporting projects in the education sector. DfID didn't provide textbooks directly to each school, but constructed the "de-centralized and school-based

system of funding for textbooks to each school.” That was to link with SbTD (School-based Teacher Development Programme), which was to train 3 KRTs for 3 subjects (mathematics, science, Swahili) in each school, and PRISM, which was training head teachers. The system was also to make linkage with PRESET but was not successful.

The project was implemented in approximately 15,000 primary schools and for 180,000 primary teachers. 2,600 TAC tutors and QASO were trained. In the evaluation of SPRED2, some of the issues raised about Kenyan primary education in general were:

1. Having to adjust to KCPE is the main reason given by those who oppose “active learning” and “child-centred teaching” in classroom.
2. Standardized school models are not suitable for all students. Accordingly, more frequent style/contents education should be provided for each grade/students’ needs.
3. Especially in primary education, poverty/bad health/lack of safe food and disease cause drop outs. Accordingly it should be understood that the reality is “survival is first” and takes emphasis over school projects.

In SPRED3, there were 2 main outputs:

1. “National textbook program” constructed the “micro-sector budget support” mechanism to get funds for textbooks and materials at school level. The textbook management division was established in MOE. With “de-centralized and school based system of funding to bring fund for textbooks to each school,” it made possible to use electric money in 18,500 primary schools.
2. “National head teacher training” was completed.

Additionally as the outputs of SPRED 3, activities for raising awareness about HIV/AIDS were started, School Lunch Project by WFP was included, and this contributed to SWAP (Sector Wide Approach) in education sector in Kenya and others (from evaluation in 2007).

3) *Early Childhood Education Project (World Bank):*

This programme established training centres in all districts for ECD tutors and training for ECD tutors.

4) *School Empowerment Programme (SEP – World Bank)*

SEP is the program implemented by the World Bank as the successor to SPRED and SbTD. In SEP, remote learning modules are established for head teachers, who gather in clusters and watch videos and have discussions. After this, each head teacher goes back to the school, and he/she calls the meeting of core persons to discuss the learned contents based around KRT. TAC tutors supervise these activities. The topics are, for example, head teacher’s leadership, development of linkage with community, policy development, improvement and capacity building etc.

5) *Kenya School Improvement Project (KENSIP) by Aga Khan and CIDA*

KENSIP started a project in 1997/98 with 2 coastal districts Mombasa and Kwale. This project has 4 components;

- Teacher Mentoring & Support
- Gender Specialist
- Governance SMC: School Management Committees (Usually SMC is with 5 parents. Every year members are changed. Many kinds of manuals will be unified.)
- Community participation (Before FPE communities had an interest because they contributed school fees, however, parents don’t care about school management anymore after FPE.)

At the beginning of the project, Aga Khan implemented it with MOE. However, later with

consideration about sustainability the mechanism was changed so that the TAC tutors come down to the field to do activities with KRTs at school level. After that, SPRED were changed to be SbTD more focused INSET, they discussed about differences between KENSIP and SbTD. After FPE in 2003, Aga Khan reviewed KENSIP. In 2006 SbTD was completed but PRISM was continued and in that system the cluster project was implemented.

Aga Khan's cluster approach contains the following; (1) to re-organize the cluster system, (2) to allocate PTTC tutors as a cluster facilitator in each 4-5 clusters. They utilize TAC centres as Cluster Resource Centres. However in North Eastern Province (NEP), schools are sparse. In such cases, 1 school is 1 cluster. QASO and DEO have all been cooperative.

6) *Education for Marginalised Children of Kenya (EMACK) by Aga Khan and UNICEF*

EMACK⁵ has a two component project with component 1 being implemented in Coast Province. Activities include among others teacher training with a focus on how to cope with large lower primary classes and building of tolerant pre-school classrooms, upgrading School Management Committees (SMCs) and special interventions for vulnerable children,

EMACK works with GoK District Center for Early Childhood Education (DICECE) and DICECEs in the EMACK project area have the mandate and the staff capabilities to deliver capacity-building services to the educational system, but lacked the resources (e.g., funds for training and transport) to carry them out. EMACK provides the resources.

The project targets approximately 150 pre-primary and 150 primary schools in urban Mombasa and rural Kwale and Kilifi districts. An estimated 45,000 children will benefit.

Component two being targets North Eastern Province.

Basically EMACK intervention seeks to:

- Support new initiatives designed to solve current pressing problems affecting the quality of education in the Coast and NEP (e.g., large class size initiative and mobile schools for pastoralists) which can provide models for replication in other parts of Kenya;
- Serve vulnerable children;
- Support ECD programming and promotes pre-school attendance, the underpinning of all future educational achievement (Head Start model);
- Support and catalyzes advocacy efforts, particularly in the area of ECD, a sector that has been adversely affected by the introduction of FPE;
- Build capacity of institutions and service providers; and
- Bring civil society (e.g., parents, CBOs and NGOs) into closer partnership with government officials

7) *UNICEF: Child Friendly Training*

This is a cluster-model project going on as planned in the period 2004-2008. The project is to strength the function of clusters. It also trains teachers to create original hand-made teaching/learning materials from local readily available materials. Another objective of the project is to strengthen the whole school through school management and teachers' abilities coupled with positive participation of QASO and parents' participation as well as other stakeholders. It targets improving all aspects in primary school like access, quality, management and teacher's competency. Remote schools are also supported given that situations or nature of schools are so varied.

⁵ Source: Education for Marginalized Children in Kenya (EMACK) Quarterly Report October 1, 2004- December 31, 2004

UNICEF started the project in 11 districts which had low enrolment ratio/completion ratio and others in NEP and slums of Nairobi. Currently after splitting of districts, they are 18-20 districts. The program is known as “Child Friendly School Training.” In the program, because there were instances of existing clusters not appropriately formed they failed to work well; they are thus being reorganised. The numbers of clusters are different in different areas; Cluster Resource Centres were established in some clusters within the arrangement. For example in Garissa they have 7-10 schools are in one cluster and they establish a Cluster Resource Centre. The Centers were built by the community. In the cluster, teachers learn to make low cost teaching aids (teaching materials). Basically 3 meetings are held per year with teachers in the cluster. In cases of remote schools, some people come to the meeting walking 60-100km. In such cases, meetings are reduced to once a year and so on.

This project is planned to continue until 2010. For 2009-2013 they will make a new program.

8) *Tafakari by USAID*

USAID has a project in PTTC with the object of teachers’ education and developing specialties, with the activities of improving curriculum, and revision/digitalization of contents. MOE gave the project the name ‘Tafakari’ (meaning ‘mind set’ in Swahili). That was started in January 2006. 20 PTTCs each receive a platform of printer, video, and CBMM (Computer Based Multi-media). AEDs (Academies for Education Development) are entrusted with curriculum development by USAID with KIE. The target is mathematics and science in grade 4 to grade 5 and from now grade 6 will be involved.

3.5.2 *Secondary Section*

The secondary education sub-sector has had very few initiatives in the past. SMASSE Project, targeting quality, has been the most prominent. A project funded by VVOB (the development agency of Belgium) targeted capacity building for quality assurance and standards officers and the Kenya Education Staff Institute (KESI). There is also a Bursary Education Scheme based at constituency level to mitigate drop-outs due to poverty.

Currently GOK has a FSE programme where the government covers all costs of schooling except for boarding. This means that secondary education in reality is free in day-secondary schools. Coupled with FSE, GOK in collaboration with development partners is providing science teaching/learning equipment and materials to needy schools. In order to enhance access and equity, construction of 4,000 classrooms in the ASALs and 1,000 classrooms in urban slums is targeted.

4. FEEDBACK ON SMASSE PROJECT (PHASE I AND II)

Mathematics and Science Education face numerous challenges in Kenya and the region as a whole. There has been persistent poor performance of students in Mathematics and Science in the KCSE. In view of this, SMASSE project was initiated to provide solutions to some of the problems that contribute to the poor performance. The problems are categorized into teacher related, student related, and parents related. Among these problems there were those that were within and those that were beyond the scope of SMASSE. The first phase of the project in the pilot districts tried to address those within its scope.

SMASSE project was initiated in 9 pilot districts in July 1998 to run for 5 years to June 2003. In an extension in Phase II of the project, which was to run from 1st July 2003 to 30th June 2008, the whole country was covered. However, after the post-election disturbances experienced in the country, Phase II was extended to 31st December 2008. The extension was to allow delayed activities to be implemented and to strengthen the relationship between National INSET Centre and DPCs as recommended in the final evaluation report. Within the extension period, there would be sensitisation and implementation of new government policy at grass-root level, which need technical and material assistance from the technical cooperation. Besides, this period was to allow time for normalisation of interrupted donor coordination in the implementation of the KESSP and to enable preparations of project documents for the next phase of technical cooperation project.

SMASSE National INSET centre is based at CEMASTEVA that is also the Secretariat of SMASE-WECSA Association. The extension was thus meant to also assist the Centre to carry out its obligation to SMASE-WECSA Association and in other external relations.

At the start of Phase I, baseline study suggested that the core of INSET curriculum should place emphasis on changing attitudes in teaching and learning on Mathematics and Sciences. The study also emphasised that teaching methodology should be reformed from teacher centred to more student and activity oriented. Thus ASEI (Activity, Student centred, Experiment, Improvisation) and PDSI (Plan, Do, See, Improve) approach was introduced. Another unique feature of the Project was that an internal Monitoring and Evaluation (M&E) Task Force was established within the Project in order to assess the quality of INSETs and measure the progress of the Project using M&E tools developed by the Task Force. Results of M&E clearly show positive difference in INSET impact before and after SMASSE activities started.

The Project also emphasised sustainability in order to institutionalise and regularise INSET systems through cost-sharing, participatory approach. As a result, the Project successfully attained the INSET system construction in districts for the whole country. INSET is now part of GOK policy as clearly captured in Sessional Paper No. 1 of 2005. In the KESSP, INSET for secondary school mathematics and science teachers is outlined as one of the 23 investment programmes. The current guidelines on the FSE capture SMASSE INSET as one of the activities to be funded through the FSE funds disbursed by GOK.

4.1 What SMASSE Project has achieved

Phases I and II of the SMASSE Project enabled successful implementation of several activities both in Kenya and the SMASE-WECSA member countries.

4.1.1 The Kenyan Component

In Kenya the following were done:

- 1) Needs assessment/baseline surveys; to identify challenges and possible approaches to address them
- 2) Sensitisation of stakeholders; for self-help efforts and eventual sustainability

- 3) Workshops/seminars on M/S Education to form consensus among stakeholders
- 4) Preparation of INSET curricula for Biology, Chemistry, Mathematics and Physics and development of teaching/learning materials
- 5) Preparation of INSET curricula for M/S education at PTTC level and development of teaching/learning materials for cycles 1 and 2 of INSET
- 6) Development of M&E instruments and evaluation activities using these instruments
- 7) Established a fully-fledged Centre, CEMASTEAs, to serve as the National INSET Centre for Kenya and Regional Centre and Secretariat for SMASE-WECSA.
- 8) Successful conduct of Cycles 1-4 of INSETs for over 1,500 District Trainers at National level and over 18,000 M/S teachers at District levels
- 9) Consolidation of INSET activities based on past experiences.

The potential of SMASSE INSET activities to impact positively on the teaching/learning process lead to a request by the association of college principals in Kenya to extend project activities to pre-service teacher training. This would enable in-service to inform pre-service activities so that teachers are well equipped before graduation. To this effect SMASSE brought on board the PTTC into its INSET programme from October 2005. Successful implementation of cycles 1 and 2 of national INSET for over 250 PTTC tutors has been realised.

4.1.2 The Regional SMASE-WECSA Component

In the course of implementing SMASSE Project, the project personnel has interacted with other African countries and shared experiences on ASEI and PDSI principles. This was done through technical exchange visits to and by other countries and through two regional conferences held in Kenya in 2001 and 2002. The conferences culminated in the formation of SMASE-WECSA Association. This movement coincided with Japan's registration of 'Capacity Development for Mathematics and Science Education in Africa as a Type 2 Initiative with the United Nations at the World Summit on Sustainable Development (WSSD) held in Johannesburg in 2002. Thus a regional component was incorporated in the extension into phase II of the project in 2003. The regional component that was implemented alongside the Kenyan component was intended to

- Produce Trainers for ASEI/PDSI based INSET for member countries
- Consolidate CEMASTEAs as resource Centre for M/S Education in Africa
- Enable CEMASTEAs function of as Secretariat of SMASE-WECSA

Through the SMASE-WECSA component, the project has influenced formulation of SMASE-type projects in several member countries. Others have tapped into the knowledge, expertise and experiences accruing from the project to strengthen existing INSET activities in their countries. A Third Country Training Programme (TCTP) that CEMASTEAs implemented on behalf of the Association has been conducted for different groups of participants from member countries as summarised in the table 9 below:

Table 9. Summary of participation in TCTP by Member Countries

Dates	No of Participants	Member Countries Participated
Jan/Feb 2004 (4 weeks)	42	7 countries
Nov/Dec 2004 (5 weeks)	85	15 countries
Oct-Dec 2005 (5 weeks)	95	12 countries
Dec 2005 (2 weeks)	72	Zambia, Rwanda, Sudan
Oct 2006 (4 weeks)	80	11 Anglophone countries
Nov 2006 (2 Weeks)	60	Zambia, Sudan and Malawi
Oct-Nov 2006 (4 weeks)	88	6 Francophone countries
August 2007 (2 weeks)	31	Sudan
Sept/Oct 2007 (4 weeks)	76	6 Anglophone Countries

Oct/Nov 2007 (4 weeks)	72	7 Francophone countries
TOTAL	701	27 countries

Within the project period, over 700 trainers of ASEI/PDSI INSET have been produced through the TCTP for 27 different countries. Follow-up in the form of Monitoring and Evaluation of classroom activities of trainees has established that they have developed appreciation for and some level of competence in the practice of ASEI/PDSI.

Other training conducted has involved participants joining Kenya teachers in their regular INSET that focuses on the principles and practices of ASEI/PDSI. The Centre has also been training, alongside their Kenyan counterparts, Education Managers from member countries on resource mobilisation, prioritisation and utilisation for strengthening of INSET and mathematics and science education in general. Over 50 participants have been trained as summarised in Table 10 below.

Table 10. Summary of Participation in Kenyan Programmes by Member Countries

Nature of Training	Country Joining	Designation of Officers joining	No. of Participants	Dates
Principals' Workshop	Malawi	Principals	6	Aug 2005
	Nigeria	INSET Centre Principals	3	
Cycle 2 of National INSET	Malawi	Core Trainers	32	Apr/Jun 2005
DEO's Workshop	Malawi	DEO	1	Aug 2005
	Nigeria	SMASE Nigeria National and State Coordinating Unit Members	9	
Inspector WS	Malawi	Senior Education Methods Advisor	3	Sep 2005
			51	

To further enhance ability of INSET providers from member countries, the Centre has also been offering "On the Job Training" (OJT). Over 30 participants have benefited as summarised in table 11 below.

Table 11. Summary of Participation in OJT by Member Countries

Country Joining	Nature of Training	Designation of Officers joining	No. of Participants	Dates
Uganda	Development of INSET Training Manuals and M&E	SESEMAT Core Trainers	4	Aug/Sep 2005
	M&E	SESEMAT Core Trainers	8	Aug/Sep 2006
Nigeria	Development of INSET Training Manuals and M&E	SMASE Nigeria- Development of Baseline Survey Tools	4	Oct 2005
		SMASE Nigeria State Trainers	12	Aug 2006
		SMASE National Trainers	4	Aug 2006
Niger	Project Design	PS, Director, National Inspector	3	Jan 2006
Tanzania	Development of TOT Training Curriculum	Education Administrators	2	Oct 2007
Lesotho, Swaziland	Development of TOT Training Curriculum	Education Administrators, Teacher Trainers	10	Oct 2007
			47	

SMASSE type INSET system has been adopted in a number of member countries: Malawi since October 2004; Uganda since October 2005; Nigeria since September 2006; Niger in 2007. Zambia

has strengthened existing system while, Rwanda, Senegal and Burkina Faso are putting in place some system of INSET.

CEMASTEAs has served satisfactorily as the Secretariat of SMASE-WECSA. It has continued to plan, organise and facilitate the Association's Regional Conferences: Ghana in 2003 (18 countries), South Africa in 2004 (21 countries), Rwanda in 2005 (30 countries), Senegal in 2006 (32 countries), Zambia in 2007 (30 countries) and Kenya 2008 (33 countries). As the Secretariat, the Centre has been dispatching officers for joint sensitisation workshops in member countries in addition to hosting technical visit teams from the member countries. CEMASTEAs has and continues to provide Third Country Expert (TCE) service in various fields: project formulation, implementation and evaluation.

In recognition of the positive work being done by SMASSE Project through the Association and in order to strengthen the initiative by giving it recognition among policy makers, the GOK applied, on behalf of the SMASE-WECSA, to Association for the Development of Education in Africa (ADEA) for the granting of a working group on mathematics and science education. Thus the ADEA-Working Group on Mathematics and Science Education (WGMSE) was formed in November 2004 and launched in March 2005.

4.2 Areas for Further Technical Cooperation Needed

In spite of these successful attainments of the Phases I and II, challenges to realising quality mathematics and science education both in Kenya and the SMASE-WECSA region still remains.

The GOK thus requests the Government of Japan to continue Japanese Technical Cooperation to the proposed SMASE Project comprising;

- SMASE INSET for primary education
- Strengthening the actual classroom practice of ASEI/PDSI at secondary school level by empowering school leadership, and
- To consolidate and further expand the SMASE-WECSA Network for promotion of quality mathematics and science education in Africa.

4.2.1 Primary Mathematics and Science Education in Kenya

The earlier phases focused on provision of INSET to secondary school teachers of mathematics and science. This was because the problem was more urgent at this level and needed immediate intervention. Primary school teachers had also had several INSET initiatives as opposed to their secondary counterparts that had had none at all. However, several challenges still remain in an effort to improve classroom practices of primary school teachers in the area of mathematics and science. The INSET initiatives have had some impact but did not help institutionalise regular training.

The positive impact of SMASSE INSET on secondary school teachers' classroom practices made Kenya Teachers' Colleges Principals' Association (KTCPA) to request the MOE for an adaptation of ASEI/PDSI approach to the teaching/learning of mathematics and science in teacher training colleges and primary schools. This was through a Concept Paper, "Strengthening Mathematics and science in Primary Education" developed in September 2003.

Japanese technical cooperation assistance was then requested by the MOE for a trial of adaptation of ASEI/PDSI by tutors of Primary Teacher Training Colleges (PTTC). This was factored in the Phase II PDM, revised at mid-term evaluation, in October 2005. The training for PTTC tutors is already ongoing on a trial basis and aims at enhancing their classroom practices. An initial training was conducted in February/March 2007 for 218 tutors; a subsequent training in April/May 2008 trained 258 tutors.

In KESSP among the constraints identified as facing Primary Teacher Education is ‘inadequate in-service of teacher trainers’. A strategy to address this is cited as ‘to continuously in-service...’; the outcome/performance indicator being ‘improvement of teacher trainers’ pedagogical knowledge and skills’ it is also indicated that there is need to ‘strengthen and make coherent the linkage, role, and coordination between the pre-service and the in-service programmes of education’. The SMASE PTTC INSET is thus in line with Ministry’s policy for continuous professional development for teacher trainers.

In the Concept Paper, the college principals’ concern however went beyond classroom practices of tutors to those of primary school teachers. They therefore suggested that the trained tutors be used to mentor the primary mathematics and science teachers. The training for tutors therefore also aims at developing them as trainer of trainers (Regional Trainer) for lower cascade level INSET (5,600 Cluster Trainers who train 60,000 primary school teachers). This stance by college principals is quite in line with MOE policies and the thinking in SMASSE Project.

Considering the above, the validity of INSET in Primary Education is very high. The reasons are:

- There are huge social needs for quality teaching/learning because student enrollments are growing rapidly after introduction of FPE in 2003.
- The overall results of KCPE are not so good.
- Both retirements and new recruitment of teachers are few, leading to a mismatch between the policy of teacher training and the actual situation of employment.

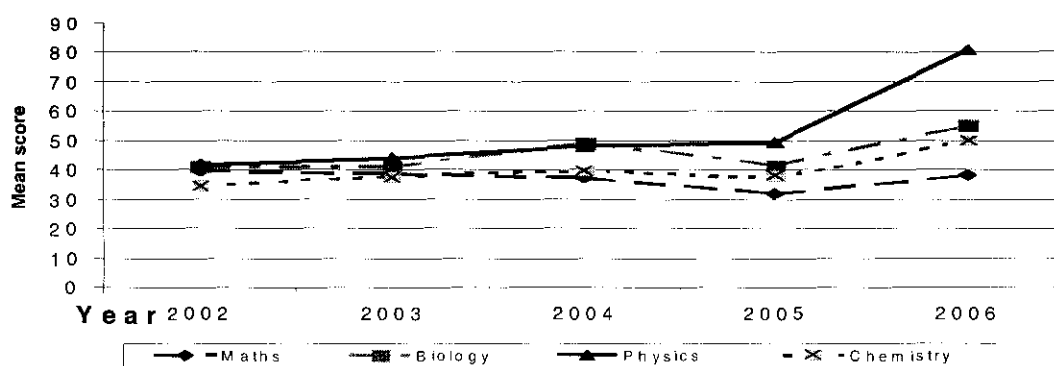
With these conditions, MOE understands the need to strengthen INSET and has decided that INSET is one of the main topics in the education sector. However MOE must summarize lessons from experiences of all INSET projects/programs and formulate a comprehensive INSET program and implement it.

The GOK therefore requested for technical assistance to put in place INSET system for PTTC tutors (Regional Trainers) and Selected teachers (Cluster Trainers and other Trainees) for primary school mathematics and science and to strengthen existing INSET system.

4.2.2 Secondary Mathematics and Science Education in Kenya

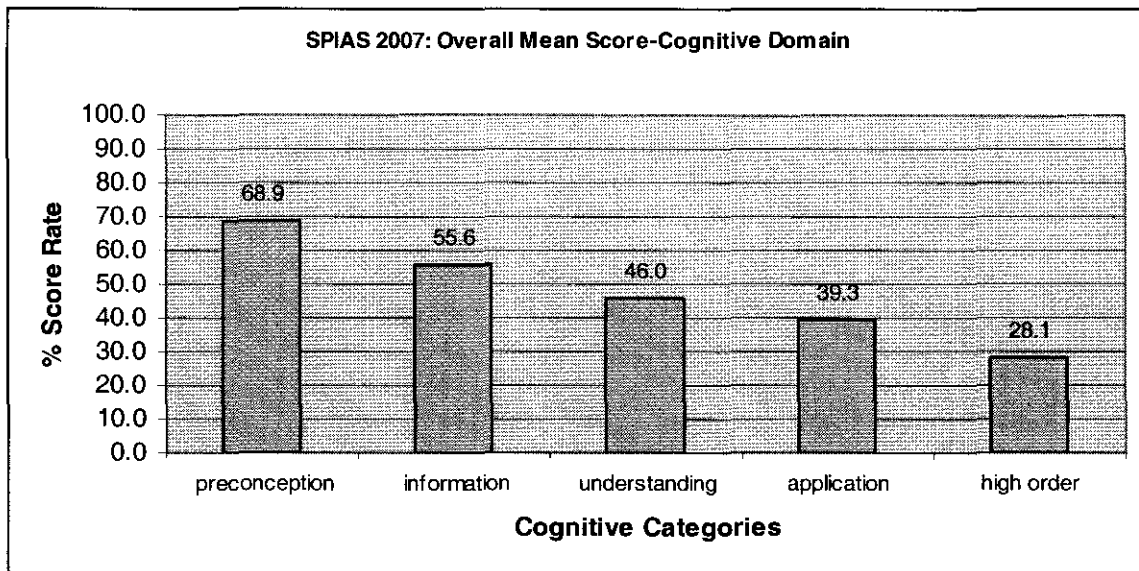
The Phase I and II of SMASSE Project focused on developing teachers’ competency in and appreciation of ASEI/PDSI way of teaching. Application of the ASEI/PDSI has had some positive impact as observed by the Minister for Education, during release of 2006 and 2007 KCSE results. Trends in the results from 2002 to 2006 (Figure 1 below) illustrate a general improvement in learning achievements.

Fig. 1: KCSE Performance Trends: Mean Score out of 200% (2002-2006)



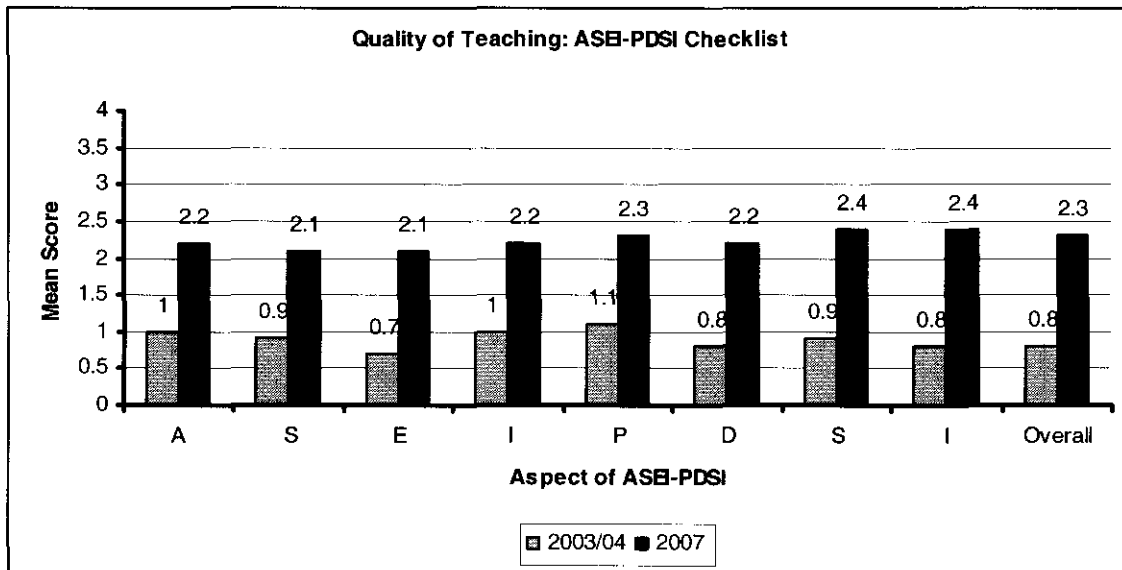
However, the KCSE results continue to be skewed towards low quality grades and students' attainments has been low in higher order thinking skills as illustrated by SMASSE Project Impact Assessment Survey (SPIAS) results of 2007 (Figure 2).

Figure 2. SPIAS Results



A gap therefore exists between ASEI/PDSI knowledge/appreciation and the ASEI/PDSI practice in the classroom. This is best demonstrated by the results of lesson observation illustrated in Figure 3 below. It can be seen that SMASSE INSET has indeed improved teachers' ASEI/PDSI practice but the scores are still far below the desired levels of ≥ 3.5 .

Figure 3. Quality of Teaching based on ASEI/PDSI: 2003/04 and 2007 Compared



Efforts to close this gap would bear fruits if directed towards capacity development of head teachers and school leadership in general in curriculum implementation and supervision of the implementation.

The final evaluation of SMASSE Project Phase II conducted in October 2007 also recommended further capacity development of local educational and school management for implementation of District INSET. Also recommended was the need for a forum for teachers to share good ASEI/PDSI

AS

KM

practices.

The Government of Kenya therefore requests for technical assistance to entrench ASEI/PDSI practices in classrooms through capacity development of school leadership and Quality Assurance and Standards Officers (QASOs) in supervision of curriculum implementation in the area of mathematics and science education.

4.2.3 Mathematics and Science Education in SMASE-WECSA member countries

The achievements of the regional component as outlined above have been possible due to the technical assistance from Government of Japan. The GOK is in cognisance of Japan/JICA's support for education in Africa as expressed in the Basic Education for Growth Initiative (BEGIN) and the support in particular for SMASE-WECSA to strengthen mathematics and science education, as pledged by Japan during WSSD in 2002. African countries are experiencing similar challenges to those in Kenya and have expressed, through SMASE-WECSA Regional conferences, the need for support in improving the mathematics and science education.

In fact the AU is implementing the 2nd Decade of Education for Africa (2006-2015) and one of the objectives of the initiative to realise 'Significantly raised educational achievement (access, quality, efficiency and relevance) while addressing teacher education and higher education for development concerns'. Among the areas of focus is teacher development, education and training which seeks to, among others, improve teacher competence, enhance school leadership and promote research in pedagogy and training. This confirms the concerns on quality among African countries.

In order to realise substantive and sustainable change in the teaching/learning of mathematics and science, there is need to create a critical mass of change agents in the form of ASEI/PDSI Trainers and sensitised education officials. The technical assistance for CEMASTEAs to provide support in promotion of ASEI/PDSI to SMASE-WECSA member countries has capacity built educators and produced greater awareness of south-south cooperation in tackling the challenges in mathematics and science education. However, so far approximately 700 Trainers of ASEI/PDSI have been produced for the 27 countries, which is still small. Given that SMASE-WECSA membership is growing, the new member countries will also need personnel to be trained and sensitised.

This is why the commitment by the Government of Japan during TICAD IV held in Yokohama (28th-30th May 2008), to train 100,000 teachers of mathematics and science in Africa over the next 5 years is very encouraging to SMASE-WECSA member countries. The AU also seeks to implement its programme in collaboration with CEMASTEAs. Such collaboration would definitely add impetus and recognition to CEMASTEAs programmes in all African countries.

The GOK therefore requests further technical assistance from the Government of Japan for CEMASTEAs to provide support to SMASE-WECSA member countries in their efforts to develop and strengthen systems for supporting teachers to provide quality mathematics and science education.

5. DESIGN OF THE PROJECT

The project will be implemented based on the framework described herebelow. Project Design Matrix and Plan of Operation are given in ANNEX 1.

5.1 Outline

5.1.1 Overall Goal:

(1) Kenya Component

Capability of young Kenyans in Mathematics and Science is upgraded.

(2) SMASE-WECSA Component

Quality of Teaching and Learning of Mathematics and Science in member countries is improved.

5.1.2 Project Purpose:

(1) Kenya Component

Quality of mathematics and science education at Primary and Secondary school levels in Kenya is strengthened through INSET.

(2) SMASE-WECSA Component

Capability of INSET providers to implement ASEI/PDSI based INSET in member countries is strengthened.

5.1.3 Coverage:

Kenya (Entire Country) and SMASE-WECSA member countries

5.1.4 Duration:

5 years (January 2009 – December 2013)

5.1.5 Responsible Agency:

Ministry of Education, Kenya (MOE) – P.O. Box 30040, Nairobi

Contact Person: Prof. George I. Godia, Education Secretary

(Tel: +254-20-318581, Fax: 214287)

5.1.6 Implementation Body:

Centre for Mathematics, Science and Technology Education in Africa (CEMASTEA)

Contact Person: Mrs. Peula Lelei, Director (Tel: +254-20-882326, Fax: 884756)

5.1.7 Target Groups:

(1-1) Kenya Component - Primary

60,000 Primary School Teachers who are teaching Mathematics and Science at grade 6,7 and 8.

20,000 Primary School Headteachers / Deputy Headteachers

5,600 Cluster Trainers

1,100 TAC tutors and 1,258 QASOs/Deputy QASOs (8 provincial, 150 district and 1,100 zonal)

320 PTTC tutors in 19 public PTTCs will be capacitated as Regional Trainers.

(1-2) Kenya Component - Secondary

6,485 Secondary School Principals

(2) SMASE-WECSA Component

INSET providers in 34 WECSA member countries

5.1.8 Beneficiaries:

(1) Kenya Component

8.2 Million Primary School Students

1.2 Million Secondary School Student

(2) SMASE-WECSA Component M/S Teachers in 34 WECSA member countries

5.1.9 Outputs:

(1) Kenya Component

- A system of National INSET for Regional Trainers is established at CEMASTEА.
- A system of Regional INSET and Regional Workshop is established at PTTCs.
- Existing system of Cluster INSET is strengthened.
- Secondary Mathematics and Science teachers' ASEI/PDSI practices in classroom are enhanced.
- Role of CEMASTEА as resource centre for Mathematics and Science education is strengthened.

(2) SMASE-WECSA Component

- ASEI/PDSI based INSET providers from member countries are trained.
- SMASE-WECSA network is strengthened.
- Role of CEMASTEА as resource centre for Mathematics and Science education in Africa is strengthened.

5.1.10 Activities:

(1) Kenya Component

- To assess INSET training needs of primary M/S teachers.
- To develop manuals and materials for National/Regional/Cluster INSET.
- To develop/review monitoring and evaluation tools for National/Regional/Cluster INSET.
- To conduct National INSET for Regional Trainers at CEMASTEА.
- To organise workshops for PTTC Principals and Deans of Curriculum/heads of M/S department on understanding of SMASE INSET & ASEI/PDSI classroom practices.
- To carry out monitoring and evaluation on quality of National INSET.
- To carry out monitoring and evaluation on impact of National INSET.

- To conduct national sensitisation workshop for DEO, QASO, TAC Tutor.
- To select Cluster Trainer.
- To provide PTTCs with training materials/apparatus as necessary for regional INSET and workshop.
- To develop the workshop contents and materials by CEMASTEА.
- To organise Regional workshops.
- To conduct Regional INSET for Cluster Trainers at PTTCs.
- To carry out monitoring and evaluation on quality of Regional INSET.
- To carry out monitoring and evaluation on impact of Regional INSET.

- To provide training materials/apparatus as necessary for Cluster INSET and District Workshop.
- To conduct Cluster INSET.
- To conduct District workshop.
- To carry out monitoring and evaluation on quality of the cluster INSET.
- To carry out monitoring and evaluation on the impact of cluster INSET and ASEI/PDSI classroom practices.
- To develop handbook on management of primary INSET system in accordance with MOE policy.

- To assess the current situation of M/S teachers' ASEI/PDSI classroom practices.
- To develop INSET content for lesson study.
- To assess the current situation of capacity of school leadership on supervision of ASEI/PDSI classroom practices.
- To develop workshop content for principals.
- To conduct National workshop for selected principals.
- To conduct District workshop for all principals.

- To carry out monitoring and evaluation on ASEI/PDSI classroom practices.
- To publish newsletters, manuals and reports.
- To establish networks with agencies/institutions involved in related activities.
- To organise symposia on good ASEI/PDSI classroom practices.
- To compile good practices of ASEI/PDSI and disseminate.

(2) SMASE-WECSA Component

- To assess the current situation and needs of INSET systems in SMASE-WECSA member countries
- To review and develop TCTP course content for mathematics and science educators from SMASE-WECSA member countries
- To review and develop training manuals and materials for the TCTP
- To train INSET providers from SMASE-WECSA member countries
- To offer technical support in the construction and strengthening of INSET system for mathematics and science education for member countries
- To monitor and evaluate the quality of TCTP
- To monitor and evaluate the impact of TCTP

- To sensitise officials of education ministries in member countries on ASEI-PDSI classroom practices as need arises
- To conduct technical exchange visits with member countries as need arises
- To promote joint workshops with member countries as need arises
- To organise and participate in SMASE-WECSA Regional conferences and delegates meetings
- To participate in relevant regional and international conferences and other activities

- To establish / strengthen networks with Regional and International organisations involved in related activities
- To collect materials and reference books for SMASE-WECSA activities
- To establish/equip a library
- To disseminate information on SMASE-WECSA activities through the website, newsletters and other publications

5.1.11 Inputs:

(1) Kenya Component

[Kenyan side]

- Buildings, Offices and other facilities necessary for INSET activities
- Assignment of adequate Kenyan full-time academic counterpart personnel at CEMASTE A
- Assignment of adequate non-academic personnel at CEMASTE A
- Expenses necessary for the project activities to be implemented in Kenya
- Expenses for repair, maintenance and improvements of CEMASTE A facilities

[Japanese side]

- Dispatch of long-term experts
- Dispatch of short-term experts
- Training of Kenyan counterpart personnel in Japan and in third countries
- Provision of training materials and equipment for INSET activities
- Expenses necessary for SMASE-WECSA activities
- Local operation cost for administration of the Project

(2) SMASE-WECSA Component

[Kenya side]

- Buildings, Offices and other facilities necessary for the project at CEMASTE A

- Assignment of adequate Kenyan full-time counterpart personnel at CEMASTEА
- Assignment of adequate support personnel at CEMASTEА

[Japanese side]

- Dispatch of long-term experts
- Expenses necessary for Training of SMASE-WECSA Counterpart personnel at CEMASTEА
- Expenses necessary for dispatch of teams for Technical exchange visits, Technical assistance and Third Country Expertise among member countries
- Expenses necessary for holding Regional conferences and SMASE-WECSA delegates meetings
- Expenses necessary for SMASE-WECSA counterparts to attend international conferences
- Provision of machinery, equipment and materials to CEMASTEА as resource centre

5.1.12 Important Assumptions:

(1) Kenya Component

Other programs do not adversely affect teachers' participation.

(2) SMASE-WECSA Component

Policy frameworks in participating countries will be supportive of INSET for Mathematics and Science teachers

5.2 Administration

Ministry of Education, through CEMASTEА, shall implement the Project with technical assistance from JICA. Management structure chart is given in ANNEX 3.

5.2.1 Joint Coordinating Committee (JCC)

The Joint Coordinating Committee, which consists both of the Japanese and Kenyan sides (chaired by Permanent Secretary, MOE), will be established for the smooth and effective implementation of the Project. It will meet at least once a year or whenever the necessity arises, in order to fulfill the following functions:

- To approve the Annual Plan of Operation of the Project
- To review the overall progress of the Project and achievement of the technical cooperation
- To make decisions on major issues arising from or in connection with implementation of the Project.

5.2.2 National Planning Committee (NPC)

The National Planning Committee, chaired by Director of CEMASTEА, will run the project on a daily basis. Functions include following:

- To make annual working plan on the basis of the Plan of Operation
- To monitor the progress of the project activities
- To take responsibilities for project's procurement
- To take daily administrative responsibilities of the Project
- To manage INSET and Workshops
- To manage SMASE-WECSA activities

5.2.3 District Planning Committee (DPC)

Main responsibility of DPC is to make District Annual Work Plan and to manage SMASE INSET activities. Functions include the following:

- To manage funds for SMASE activities in the District
- To prepare and implement budget for INSET and WS
- To sensitize stakeholders in the district on the project activities
- To prepare annual financial expenditure and SMASE training reports, and submit to the MOE and copy to CEMASTEА, District Heads Associations and PDE

- To recruit trainers
- To ensure INSET Centers are functional
- To take custody of INSET materials and equipment at the INSET Center
- To vet and appraise Trainers on their performance
- To invite teachers, principals and QASOs for training
- To monitor and ensure attendance by the teachers and head teachers for the training and workshops
- To give feedback to TSC on district training

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6. FEASIBILITY OF THE PROJECT

6.1 Relevance

(a) Kenya Component

Various National Development Policy Documents of the GOK: National Development Plan, Master Plan on Education and Training: 1997-2010, Poverty Reduction Strategy Paper (PRSP), Economic Recovery Strategy for Employment and Wealth Creation, Sessional Paper No. 1 of 2005 on "Policy Framework on Education and Training", Kenya Education Sector Support Program etc. emphasise the importance of Mathematics and Science Education in order to achieve higher economic levels in the country. Accordingly GOK is prepared to invest into strengthening of Mathematics and Science Education. SMASE Project is highly in conformity with social needs of the Kenyan society. It is also in conformity with JICA's policy on development assistance to Kenya.

(b) SMASE-WECSA Component

The desire of SMASE-WECSA member countries for attainment of higher economic levels is similar in intensity to that of Kenya. This can be achieved through quality education. Quality education is a concern that cuts across every system of education. ADEA Biennial meeting in 2003 observes that the quality education remains a concurrent challenge in Sub-Sahara Africa. The Dakar summit in 2000 strongly emphasised quality dimension in education in African countries, which is a social service that defines the identity of the individuals and spearheads social economic aspirations. The role that quality education can play in this is recognised by the highest body on the continent, the African Union.

To this effect the AU launched the 2nd Decade of Education for Africa (2006-2015). One of the objectives of the initiative is to attain '*Significantly raised educational achievement (access, quality, efficiency and relevance) while addressing teacher education and higher education for development concerns*'⁶. The Conference of Ministers of Education adopted several areas of focus areas to be addressed amongst which are teacher development, education and training and quality management. UNESCO recognises that the quality dimension in Africa is constrained by teacher quality⁷. This is why it developed the Teacher Training Initiative for Sub-Saharan Africa (TTISSA) to be implement from 2006-2015 to improve among others quality in effort to help achieve EFA in the region.

Each of the SMASE-WECSA member countries has target dates for attaining middle level economies or for industrialisation. Nonetheless, quality of mathematics and science education, which is considered vehicle for such attainments, has been considerably low. The need for urgent improvement of quality in the mathematics and science education in member countries has been confirmed through regional conferences held through Phase II of the project. The policy puts emphasis on South-South collaboration through formation of a strong network like SMASE-WECSA in the region.

Japanese Government declared interest to raise national and regional capabilities levels in science and technology in Africa. One way was to be through support of education as expressed in BEGIN and during WSSD. The recently concluded TICAD IV held in Yokohama City (May 2008), the Japanese Government committed to train 100,000 teachers of mathematics and science in Africa over the next 5 years.

6.2 Effectiveness

(a) Kenya Component

INSET systems constructed during Phase I and II Projects have been recognised as sustainable

⁶ African Union: Second Decade of Education for Africa (2006-2015). Draft Action Plan (June 2006)

⁷ UNESCO: Teacher Training Initiative for Sub-Saharan Africa (TTISSA) 2006-2015. Concept Note

systems for continuous professional development of teachers leading to achievement of the Project's overall goal. The systems were constructed using existing resources in the country. Hence, in the envisioned SMASE Project, the systems will play a pivotal role in entrenchment of ASEI/PDSI in secondary school classes of mathematics and sciences. Sustainable INSET systems will be constructed in all public PTTCs to train trainers of teachers of mathematics and sciences in the primary schools. The system in PTTCs will be supplemented accordingly by the system for training secondary school teachers in order to train all mathematics and science teachers at the primary school level.

As a result of using such systems effectively, the overall goal of the Project will be achieved. Since SMASE Project will cover whole basic education sub-sector, the Project can be regarded as a national project in strengthening mathematics and science education. GOK supports the project through its investment policy (KESSP, 2005 –2010) to achieve the project purpose and eventually the overall goal.

(b) SMASE-WECSA Component

Through SMASE-WECSA Regional conferences, ADEA conferences, Technical visits to SMASSE Kenya Project, workshops jointly organised and facilitated by staffs of CEMASTEAs and officers in member countries, officers of Ministries of Education in over 30 member countries have been sensitised on impact of the Kenyan INSET system and features of sustainability of such a system. Subsequent to the awareness, 24 countries are fully registered members of SMASE-WECSA Association. Indeed, 9 countries (Malawi, Uganda, Zambia, Mozambique, Nigeria, Niger, Senegal, Burkina Faso and Rwanda) have launched SMASE type projects. A number of other countries have expressed interest to follow suite. SMASE Project will focus on CEMASTEAs doing further sensitisations of relevant officers of Ministries of Education and collaborative works with member countries that accept ASEI/PDSI approach more readily. Hence, the goal of the Project would be likely achieved.

6.3 Efficiency

During the SMASSE Project, number of beneficiaries exceeded the expected number. Since implementation of the SMASE Project would be based on approaches and methodologies similar to those in SMASSE Phases I and II, it will be quite possible to attain or exceed these levels of efficiency.

(a) Kenya Component

Phase II of the project managed to train over and above the targeted number of district trainers and offered INSET to over and above the targeted number of teachers in the 5 years of project period. The possibility of training over 250 PTTC tutors (Regional Trainers) and over 5,600 Cluster Trainers (selected primary school teachers) for primary school M/S teachers is very high.

(b) SMASE-WECSA Component

Over 6 countries initiating SMASE projects customised from the Kenyan type and to offer ASEI/PDSI based INSET to over 400 mathematics and science educators from SMASE-WECSA countries.

6.4 Impact

(a) Kenya Component

During Phase I and II of the Project, impact was confirmed in the following two areas;

- Attitude of mathematics and science teachers toward teaching changed positively
- Interest of students in mathematics and science was enhanced.

Therefore during the project period of the proposed SMASE Project:

- Strengthening of mathematics and science in primary education can be expected to realise positive attitude change among teachers and pupils as well as improved classroom practices based on ASEI/PDSI.
- Entrenchment of ASEI/PDSI practices in secondary mathematics and science classrooms can be expected to give greater positive impact on quality of education in Kenya through greater positive changes of attitude of teachers and students than that SMASSE Project Phases I & II. It is possible to expect enhanced learner achievement.

(b) SMASE-WECSA Component

The project aims to disseminate the experiences in INSET system construction and impact of SMASSE Project Phase I and II to SMASE-WECSA member countries. Hence, similar impact obtained by the SMASSE Project will be expected in member countries. Growth in registered membership of SMASE-WECSA and increase in number of countries implementing SMASE type INSET is expected. This will lead to a more widespread of ASEI/PDSI knowledge and practice.

6.5 Sustainability

(a) Kenya Component

The Phase I and II Projects proved that INSET Centres created at National and District levels are sustained and fully utilised for INSET. As far as financial issues are concerned, GOK contributed annually KSh 40M and the SMASSE Districts together contributed approximately KSh 100M respectively to support INSET activities. The financial contribution from GOK has been increased to KSh 54M from KFY 2008/09. Funding for District INSET has been factored into the FSE Fund. These are expected to continue and to grow to larger amounts proportionate to increase in activities.

(b) SMASE-WECSA Component

24 SMASE-WECSA member countries are fully registered with a payment of US\$300 as Registration fee and US\$100 as annual subscription fee. Some more countries have initiated or in the process of initiating projects for SMASE. The number of countries showing interest in the practice of ASEI/PDSI in the classroom has continued to increase since ADEA established a WGMSE in 2005. There is a possibility of collaborating with AU and this might translate into ownership of SMASE-WECSA Association by African countries. These trends, coupled with continued sensitisation of officers of Education Ministries in member countries, particularly in those countries that will join the TCTP in Kenya there seems to be a possibility to gain sustainability of SMASE-WECSA activities.

ANNEX 1

(1) Project Design Matrix (PDM): Kenya Component

Project Title: Strengthening of Mathematics and Science Education (SMASE)

Executing Bodies: Ministry of Education (MOE) and Japan International Cooperation Agency (JICA)

Duration: 5 years from January 2009 to December 2013

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
(Overall goal) Capability of young Kenyans in Mathematics and Science is upgraded.	(a) Performance in National Examinations at primary and secondary education (b) Results of original achievement tests, such as SPIAS at the secondary level	Kenya National Examinations Council SMASE M&E report	
(Project Purpose) Quality of Mathematics and Science education at Primary and Secondary school levels in Kenya is strengthened through INSET.	By the end of the project, the results of the lesson observation by following monitoring tools reach the targeted figures; (Primary level) (a) Lesson Innovation Index (target figure: 3.0) (b) ASEI/PDSI Check List (target figure: 2.0) (c) Lesson Observation Index (target figure: 2.0) (d) Student Participation Index (target figure: 2.5) (Secondary level) (a) ASEI/PDSI Check List (target figure: 3.0) (b) Lesson Observation Index (target figure: 3.0) (c) Student Participation Index (target figure is 3.0)	SMASE Project M&E reports	
(Output) 1. A system of National INSET for Regional Trainers is established at CEMASTEAs. 2. A system of Regional INSET and Regional workshop is established at PTTCs. 3. Existing system of cluster INSET is strengthened. 4. Secondary M/S teachers' ASEI/PDSI practices in classroom are enhanced.	By the end of the project: 1 (a) 4 cycles of training materials and programs for the National INSET for the primary education are developed. 1 (b) Over 250 Regional Trainers are trained at CEMASTEAs. 1 (c) National INSET for the primary education at CEMASTEAs obtain mean of over 3 on the scale of 0 to 4 in the Quality of INSET Assessment Index. 2 (a) Regional INSET for Cluster Trainer at PTTCs is carried out four times. 2 (b) At least 5,600 Cluster Trainers are trained. 2 (c) Over 1,000 TAC Tutors and 8 provincial, 140 district and 1,000 Zone QASOs are trained. 2 (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. 2 (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. 3 (a) A guideline/manual on management of M/S INSET for primary school teacher is developed. 3 (b) At least 60,000 primary school teachers drawn from every cluster in the country participate in Cluster INSET. 4 (a) INSET and workshop contents for introducing lesson study are developed. 4 (b) 360 principals are trained at National workshop. 4 (c) Over 6,000 Principals are trained at District workshop.	1. SMASE Project M&E reports. 2. SMASE Project M&E reports. 3. SMASE Project M&E reports. 4. SMASE Project M&E reports.	Other programs do not adversely affect teachers' participation.

ANNEX 1

<p>5. Role of CEMASTEAs as resource centre for M/S education is strengthened.</p>	<p>5 (a) At least 8 newsletters are published and distributed. 5 (b) At least 2 titles on ASEI/PDSI practices are published and distributed.</p>	<p>5. SMASE Project M&E reports.</p>	
<p>(Activities)</p> <p>1-1 To assess INSET training needs of primary M/S teachers 1-2 To develop manuals and materials for National/Regional/Cluster INSET. 1-3 To develop/review monitoring and evaluation tools for National/Regional/Cluster INSET. 1-4 To conduct National INSET for Regional Trainers at CEMASTEAs. 1-5 To organise workshops for PTTC Principals and Deans of Curriculum/heads of M/S department on understanding of SMASE INSET & ASEI/PDSI classroom practices. 1-6 To carry out monitoring and evaluation on quality of National INSET. 1-7 To carry out monitoring and evaluation on impact of National INSET.</p> <p>2-1 To conduct national sensitisation workshop for DEO, QASO, TAC Tutor. 2-2 To select Cluster Trainer. 2-3 To provide PTTCs with training materials/apparatus as necessary for regional INSET and workshop. 2-4 To develop the workshop contents and materials by CEMASTEAs. 2-5 To organise Regional workshops. 2-6 To conduct Regional INSET for Cluster Trainers at PTTCs. 2-7 To carry out monitoring and evaluation on quality of Regional INSET. 2-8 To carry out monitoring and evaluation on impact of Regional INSET.</p> <p>3-1 To provide training materials/apparatus as necessary for Cluster INSET and District Workshop. 3-2 To conduct Cluster INSET. 3-3 To conduct District workshop. 3-4 To carry out monitoring and evaluation on quality of the cluster INSET. 3-5 To carry out monitoring and evaluation on the impact of cluster INSET and ASEI/PDSI classroom practices. 3-6 To develop handbook on management of primary INSET system in accordance with MOE policy.</p> <p>4-1 To assess the current situation of M/S teachers' ASEI/PDSI classroom practices 4-2 To develop INSET content for lesson study. 4-3 To assess the current situation of capacity of school leadership on supervision of ASEI/PDSI classroom practices. 4-4 To develop workshop content for principals. 4-5 To conduct National workshop for selected principals. 4-6 To conduct District workshop for all principals. 4-7 To carry out monitoring and evaluation on ASEI/PDSI classroom practices.</p> <p>5-1 To publish newsletters, manuals and reports. 5-2 To establish networks with agencies/institutions involved in related activities. 5-3 To organise symposia on good ASEI/PDSI classroom practices. 5-4 To compile good practices of ASEI/PDSI and disseminate.</p>		<p>(INPUTS)</p> <p>Kenyan side:</p> <ol style="list-style-type: none"> Buildings, Offices and other facilities necessary for INSET activities Assignment of adequate Kenyan full-time academic counterpart personnel at CEMASTEAs Assignment of adequate non-academic personnel at CEMASTEAs Expenses necessary for the project activities to be implemented in Kenya Expenses for repair, maintenance and improvements of CEMASTEAs facilities <p>Japanese side</p> <ol style="list-style-type: none"> Dispatch of long-term experts Dispatch of short-term experts Training of Kenyan counterpart personnel in Japan and in third countries Provision of training materials and equipment for INSET activities Expenses necessary for SMASE-WECSA activities Local operation cost for administration of the Project 	<p>The counterparts at CEMASTEAs and key trainers in the devolved cascade levels will be motivated enough to continue to work for the project</p> <p>Preconditions: Teachers' union support the project.</p>

ANNEX 1

(2) Project Design Matrix (PDM): SMASE-WECSA Component

Project Title: Strengthening of Mathematics and Science Education (SMASE)

Executing Bodies: Ministry of Education (MOE) and Japan International Cooperation Agency (JICA)

Duration: 5 years from January 2009 to December 2013

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
(Overall goal) Quality of Teaching and Learning of Mathematics and Science in member countries is improved	(a) Practice of ASEI/PDSI Index obtain a mean of 2.5 on a scale of 0-4 (b) Quality of learning Index attains a mean of 2.5	M & E Reports	
(Project Purpose) Capability of INSET providers to implement ASEI/PDSI based INSET in member countries is strengthened	By the end of the project period: (a) Lesson Innovation Index attains a mean of 2.5 (b) INSET providers obtain a mean of 2.5 on a scale of 0-4 in the overall assessment of Capacity Building Index for INSET provision	SMASE Project Monitoring and Evaluation Reports	Policy frameworks in participating countries will be supportive of INSET for Mathematics and Science teachers
(Outputs) 1. ASEI/PDSI based INSET providers from member countries are trained. 2. SMASE-WECSA network is strengthened. 3. Role of CEMASTEAs is strengthened as resource centre for Mathematics and Science education in Africa.	1. By the end of the project period: a) TCTP at CEMASTEAs is carried out five times. b) At least 400 participants attend the TCTP at CEMASTEAs c) At least 40 sets of training materials are produced d) M & E tools applicable to member countries are developed and used 2. By the end of the project period: a) Regional conferences and SMASE-WECSA delegates meetings are held at least four times b) Increased number of countries participating in SMASE-WECSA activities and implementing INSET. c) Technical exchange notes: LOU, MOU etc. 3. By the end of project period: a) ASEI/PDSI prototype lesson plans, developed by member countries, are compiled and disseminated. b) At least 4 SMASE-WECSA newsletters are published.	1. SMASE Project M&E reports. 2. SMASE Project M&E reports. 3. SMASE Project M&E reports.	
(Activities) 1-1 To assess the current situation and needs of INSET systems in SMASE-WECSA member countries 1-2 To review and develop TCTP course content for mathematics and science educators from SMASE-WECSA member countries 1-3 To review and develop training manuals and materials for the TCTP 1-4 To train INSET providers from SMASE-WECSA member countries 1-5 To offer technical support in the construction and strengthening of INSET system for mathematics and science education for member countries 1-6 To monitor and evaluate the quality of TCTP	(Input) 1. Kenya side: a Buildings, Offices and other facilities necessary for the project at CEMASTEAs b Assignment of adequate Kenyan full-time counterpart personnel at CEMASTEAs c Assignment of adequate support personnel at CEMASTEAs 2. Japanese side:	Support and understanding are obtained from member countries to sustain SMASE-WECSA activities.	

ANNEX 1

<p>1-7 To monitor and evaluate the impact of TCTP</p> <p>2-1 To sensitise officials of education ministries in member countries on ASEI-PDSI classroom practices as need arises</p> <p>2-2 To conduct technical exchange visits with member countries as need arises</p> <p>2-3 To promote joint workshops with member countries as need arises</p> <p>2-4 To organise and participate in SMASE-WECSA Regional conferences and delegates meetings</p> <p>2-5 To participate in relevant regional and international conferences and other activities</p> <p>3-1 To establish / strengthen networks with Regional and International organisations involved in related activities</p> <p>3-2 To collect materials and reference books for SMASE-WECSA activities</p> <p>3-3 To establish/equip a library</p> <p>3-4 To disseminate information on SMASE-WECSA activities through the website, newsletters and other publications</p>	<p>a Dispatch of long term experts</p> <p>b Expenses necessary for Training of SMASE-WECSA Counterpart personnel at CEMASTE A</p> <p>c Expenses necessary for dispatch of teams for Technical exchange visits, Technical assistance and Third Country Expertise among member countries</p> <p>d Expenses necessary for holding Regional conferences and SMASE-WECSA delegates meetings</p> <p>e Expenses necessary for SMASE-WECSA counterparts to attend international conferences</p> <p>f Provision of machinery, equipment and materials to CEMASTE A as resource centre</p>	<p>Pre-condition <i>Member countries have or will have plans of improving Mathematics and Science Education at basic level.</i></p>
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ANNEX 2-2 Plan of Operation for the Whole Period (SMASE-WECSA Component)

Name: Strengthening of Mathematics and Science Education (SMASE) in Kenya and SMASE-WECSA

Project Purpose: Capability of INSET providers to implement ASE/PDSI based INSET in member countries is strengthened

Output	Activities	2009			2010			2011			2012			2013														
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12			
1. ASE/PDSI based INSET providers from member countries are trained.	1) To assess the current situation and needs of INSET systems in SMASE-WECSA member countries 2) To review and develop TCTP course content for mathematics and science educators from SMASE-WECSA member countries 3) To review and develop training manuals and materials for the TCTP 4) To train INSET providers from SMASE-WECSA member countries																											
2. SMASE-WECSA network is strengthened.	5) To offer technical support in the construction and strengthening of INSET system for mathematics and science education for member countries 6) To monitor and evaluate the quality of TCTP 7) To monitor and evaluate the impact of TCTP																											
3. Role of CEMASTEA is strengthened as resource centre for Mathematics and Science education in Africa.	1) To sensitise officials of education ministries in member countries on ASEI-PDSI classroom practices as need arises 2) To conduct technical exchange visits with member countries as need arises 3) To promote joint workshops with member countries as need arises 4) To organise and participate in SMASE-WECSA Regional conferences and delegates meetings 5) To participate in relevant regional and international conferences and other activities 1) To establish / strengthen networks with Regional and International organisations involved in related activities 2) To collect materials and reference books for SMASE-WECSA activities 3) To establish/equip a library 4) To disseminate information on SMASE-WECSA activities through the website, newsletters and other publications.																											

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ANNEX 2-3 INSET & Sensitizing Workshop Schedule 2009 - 2013

1. PRIMARY LEVEL

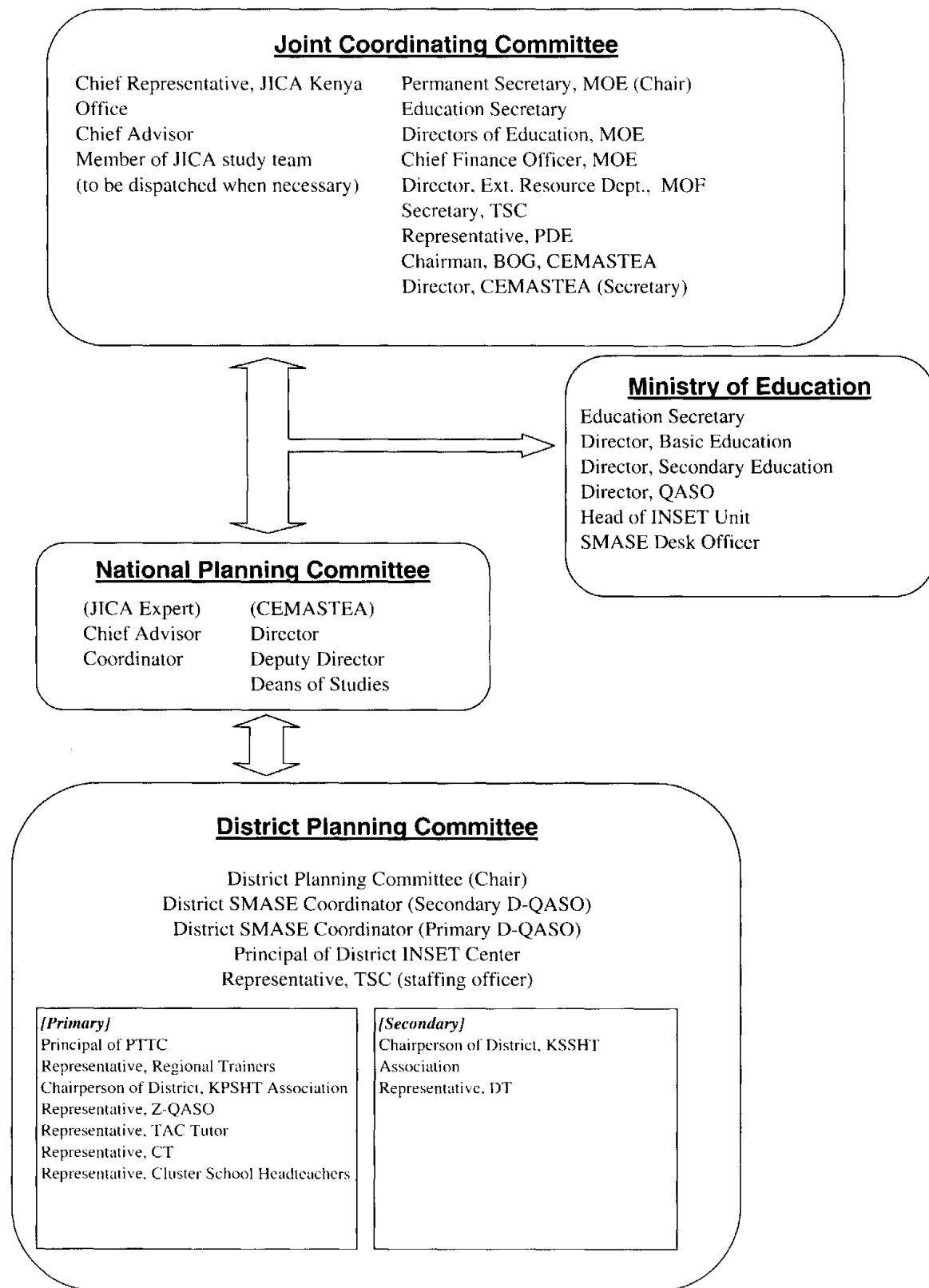
Level	Venue	INSET / WS	Target	2009												2010												2011												2012												2013											
				1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
National	CEMASTE A	National INSET	RT (320)	Cycle 3												Renewed Cycle 1												Renewed Cycle 2												Renewed Cycle 3												Renewed Cycle 4											
		National WS	PTTC Principal & Dean/HOD (57)																																																												
Regional	PTTC	Regional WS	TAC Tutor (1100) P-QASO (8) D-QASO /Deputy(150) Z-QASO(1100).																																																												
		Regional INSET	Cluster Trainer (5,600)	Renewed Cycle 1												Renewed Cycle 2												Renewed Cycle 3												Renewed Cycle 4																							
		District WS	Headteacher /Deputy (20,000)																																																												
District	INSET centre /Cluster school	Cluster INSET	M/S teacher grade 6-8 (60,000)	Renewed Cycle 1												Renewed Cycle 2												Renewed Cycle 3												Renewed Cycle 4																							

2. SECONDARY LEVEL

Level	Venue	INSET / WS	Target	2009												2010												2011												2012												2013											
				1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12												
National	CEMASTE A	National WS	Principal (360)																																																												
District	INSET centre	District WS	Principal (6,125)																																																												

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ANNEX 3-1 Management Structure / Organisation Chart



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ANNEX 3-2 List of District INSET Centre

	Province	District	INSET Centre
1	Nyanza	Migori / Rongo/ Kuria E/ Kuria W	Ulanda Girls High Sch
2		Rachuonyo	Agoro Sare High Sch
3		Nyamira / Manga	Kebirigo Sec Sch
4			Sironga Girls High Sch
5		Masaba / Borabu	Nyansiongo High Sch
6		Nyando	Nyakach Girls High Sch
7			Ahero Sec Sch
8		Kisumu W / Kisumu E	Bishop Okoth Ojolla Sec Sch
9		Kisumu Municipality	Kisumu Girls High Sch
10		Bondo / Rarieda	Nyamonye Girls High Sch
11		Siaya	Rang'ala Sec Sch
12			Ng'iya Girls High Sch
13		Homa Bay	Asumbi Girls High Sch
14		Suba	Mbita Boys High Sch
15		Gucha / Gucha South	Saemta Boys High Sch
16			Sengera Girls High Sch
17		Kisii Central / Kisii South	Kisii High Sch
18	Eastern	Tigania / Igembe	Kanjalu Girls Sec Sch
19		Meru Central / Imenti North	Kaaga Girls High Sch
20		Tharaka / Imenti South	St. Mary Girls High Sch Igoji
21		Isiolo / Marsabit / Moyale / Chalbi / Lesamis / Garbatula	Isiolo Boys High Sch
22		Mbeere	Consolata Gitaraka Sec Sch
23		Machakos	Machakos Girls High Sch
24		Yatta	Masinga Girls High Sch
25		Kangundo	Tala Girls High Sch
26		Mwala	Vyulya Sec Sch
27		Mwingi / Kyuso	Migwani Boys High Sch
28		Embu	Kyeni Girls High Sch
29			Nguviu Boys Sec Sch
30		Kitui / Mutomo	Mulango Girls High Sch
31			Muthale Girls High Sch
32		Chuka / Maara	Chuka Girls Sec Sch
33		Makueni / Mbooni / Nzau / Kibwezi	Makueni Boys Sec Sch
34			Precious Blood Sec Sch Kilungu
35	St. Joseph Sec Sch Kibwezi		
36	Rift Valley	Keiyo	Kaptagat Girls High Sch
37		Marakwet	Moi Girls High Sch, Kapsowar
38		Bomet / Trans Mara	Moi Siongiroi Girls High Sch
39			Tenwek Boys Sec Sch
40		Eldoret East	Moi Girls Eldoret High Sch
41		Eldoret West	Loreto Matunda Sec Sch
42		Tans Nzoia West	St. Brigids Sec Sch
43		Tans Nzoia East / Kwanza / Turkana	St. Mark Boys High Sch
44		West Pokot / Central Pokot / North Pokot	Nasokol Girls High Sch
45		Laikipia East / Laikipia West	Njonjo Girls High Sch
46		Kericho	Moi Tea Girls High Sch
47		Kipkelion	Londiani Girls High Sch
48		Nandi Central	Kapsabet Girls High Sch
49		Nandi North (Mosop)	Lelmokwo Boys High Sch
50		Nandi South / Naidi East / Tindaret	St. Mary Tachasis
51		Molo	Mary Mount Girls High Sch
52			Njoro Boys High Sch
53		Nakuru	Menengai High Sch
54	Nakuru North	Bahati Girls High Sch	

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55		Naivasha	Naivasha Girls High Sch
56		Narok North / Narok South	St. Mary Girls High Sch
57		Bureti / Sotik	Kaplong Girls High Sch
58			Tengecha Girls High Sch
59		Koibatek	Solian Girls High Sch
60		Baringo E / Baringo C / Baringo N	Sacho High Sch
61		Wareng	Hill Sec Sch
62		Samburu E / Samburu W	Nanyuki Boys High Sch
63		Kajiado / Loitokitok	Moi Girls High Sch, Isinya
64	Central	Thika / Gatundu	Mary Hill Girls High Sch
65			Karinga Girls High Sch
66			Gatanga Girls High Sch
67		Nyandarua North	Nyandarua High Sch
68			Nyahururu Boys High Sch
69		Nyandarua South	Karima Girls High Sch
70		Kirinyaga	Kianyaga Boys High Sch
71			Karoti High Sch
72			Kerugoya Girls High Sch
73		Nyeri North / Nyeri South	Nyeri High Sch
74			Chinga Girls High Sch
75			Tumutumu Girls High Sch
76			Kangubiri Girls High Sch
77		Murang'a North	Kahuhia Girls High Sch
78			Murang'a High Sch
79		Kiambu East	Kiambu High Sch
80			St. Joseph Githunguri High Sch
81		Kiambu West	Ngarariga Girls High Sch
82			Kirangari High Sch
83		Murang'a South	Njiri High Sch
84			Kamahuha Girls High Sch
85	North Eastern	Wajir E / Wajir W / Wajir S / Wajir N / Garissa / Ijara / Fafi / Ladgera / Mandera E / Mandera C / Mandera W	Wajir Girls High Sch
86	Nairobi	Nairobi E / Nairobi W / Nairobi N	St. George's Girls High Sch
87			Statehouse Girls High Sch
88			Buru Buru Girls High Sch
89			Jamuhuri High Sch
90			Kenya High Sch
91	Western	Vihiga	Moi Girls High Sch, Vokoli
92		Emuhaya	Bunyore Girls High Sch
93		Bungoma East	Lugulu Girls High Sch
94		Bungoma South / Bungoma West	Cardinal Otunga High Sch
95			Bungoma High Sch
96		Bungoma North / Mt. Elgon	Friends Kamsinga Girls High Sch
97		Teso	Kolanya Girls High Sch
98		Busia / Bunyala / Samia	St. Cecilia High Sch, Nangina
99		Lugari	Bishop Njenga Sec Sch
100		Kakamega North / Kakamega Central	Kakamega High Sch
101		Kakamega South / Kakamega East	Mukumu Girls High Sch
102		Hamisi	Kaimoshi Girls High Sch
103		Butere / Mumias	Butere Girls High Sch
104	Coast	Malindi / Lamu / Tana River / Tana Delta	Malindi High Sch
105		Mombasa / Kilindini	Coast Girls High Sch
106		Kwale / Msambweni / Kinango	Matuga Girls High Sch
107		Kilifi / Kaloleni	Dr. Krapf Memorial Sec Sch
108		Taita / Taveta	Bura Girls High Sch

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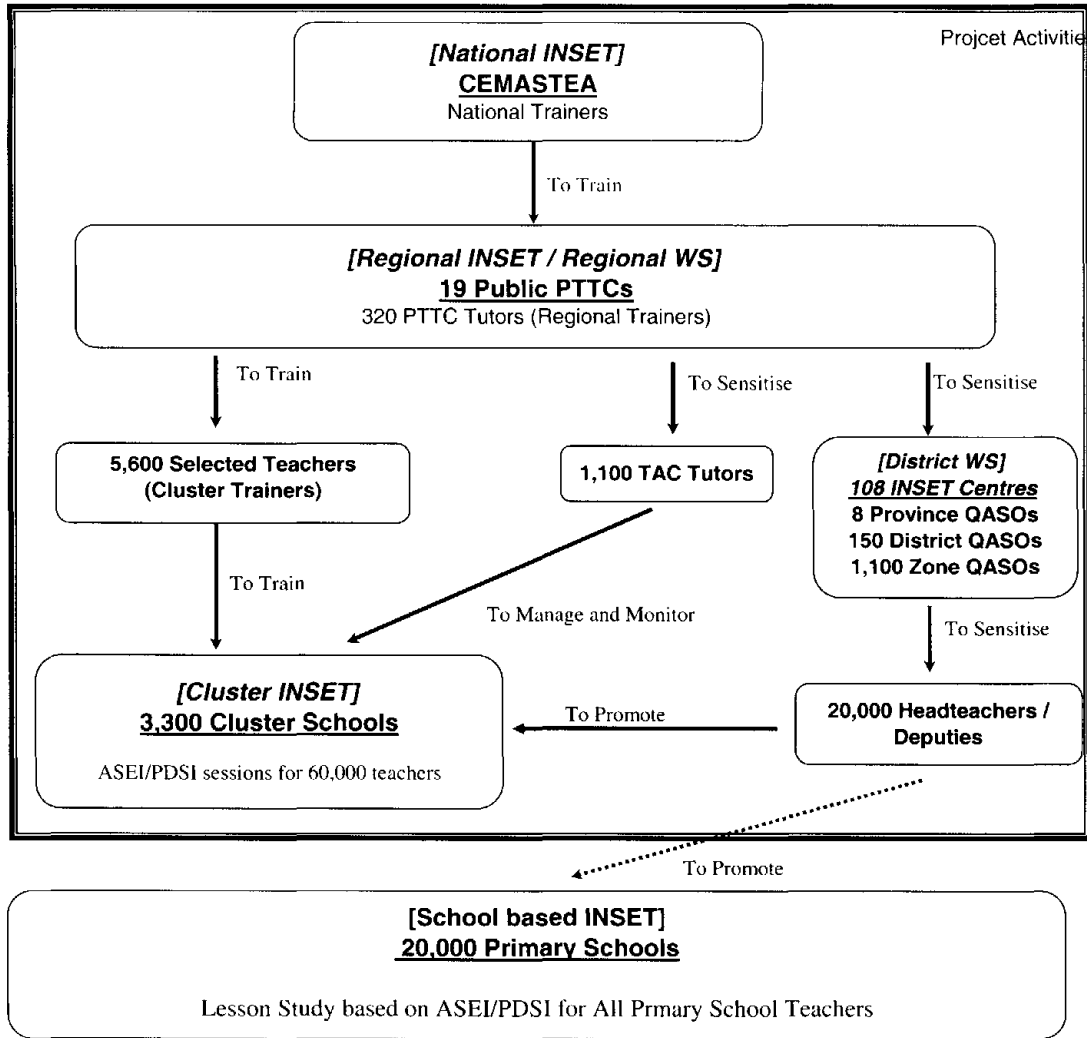
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ANNEX 3-3 List of Public PTTC

List of Public PTTC (expected as Primary Regional INSET Centre)

	College	Office Line	Address	Principal
1	Asumbi Teachers Training College	058 21201, 21203	POBox 119 - 40309 Asumbi, Kisii	Mr. Johnson Nyanina
2	Baringo Teachers Training College	053 22620	POBox 1 Serutenin - Kabarnet	Mr. C. N. Lagat
3	Bondo Teachers Training College	057 520071, 520072, 520081	POBox 424-40601 Bondo	Ms. Anjerica M. Ouya
4	Egoji Teachers Training College	064 22502	Private Bag, Egoji	Mr. Kinoti Imanyara
5	Eregi Teachers Training College	056 51020, 51015, 51070	POBox 100 Maragoli	Mr. J. K. Bett
6	Garissa Teachers Training College	046 2130, 2188	POBox 496 Garissa	Mr. George Kirimi
7	Kaimosi Teachers Training College	056 41433, 41466	Private Bag Tiriki, Kakamega	Mrs. Theresia Mbelase
8	Kamwenja Teachers Training College	061 2030703, 2030616	POBox 152 Nyeri	Ms. Hellen Waweru
9	Kericho Teachers Training College	052 30171, 20067	POBox 10 Kericho	Mr. E. Komen
10	Kigari Teachers Training College	068 53045, 53044	Private Bag, Embu	Mr. Godfrey Kinoo Maingi
11	Kilimambogo Teachers Training College	020-2042663, 2098142	POBox 8 Thika	Mr. David N. O. Nyakaru
12	Machakos Teachers Training College	044 21357	POBox 124 Machakos	Mrs. Ursuna Wafura
13	Meru Teachers Training College	064 31155, 31261	POBox 46 Meru	Mrs. Priscilla Gichuru
14	Migori Teachers Training College	059 20513, 20772	POBox 123 Suna Migori	Mr. Kokello P. O.
15	Mosoriot Teachers Training College	0538 33253, 33250	POBox 100-30100 Mosoriot	Mr. Samuel K. A. Too
16	Muranga Teachers Training College	067 64221, 64096, 23210	POBox 232 Makuyu - Thika	Mr. George Kirimi
17	Shanzu Teachers Training College	041 5486151, 5486523	POBox 90533 Mombasa	Mr. Jamesk Ziroh (Chairman of KTCPA)
18	Tambach Teachers Training College	053 42428, 42472, 42422	Private Bag, Tambach, Iten	Mr. J. C. A. Kingoo
19	Thogoto Teachers Training College	066 32214	Private Bag Kikuyu	Mr. Isaac K. Mwangi

ANNEX 4-1 INSET and Workshop Structure at Primary Level



Delivery System of Primary INSET

Level	Objectives	Participants	Trainers	Venue	Duration	Management
National	To Enhance Classroom Practices at Primary	320 PTTC Tutors (as Regional Trainers; RT)	CEMASTEA Academic Staff	CEMASTEA	2 weeks	CEMASTEA
Regional	School level through Introduction of ASEI/PDSI Sessions in Cluster INSET.	5,600 Selected Teachers (as Cluster Trainers)	320 RT	19 PTTCs	2 weeks	DPC
Cluster		60,000 M/S Teachers (Grade 6-8)	5,600 CT	3,300 Cluster Schools	5 days	DPC

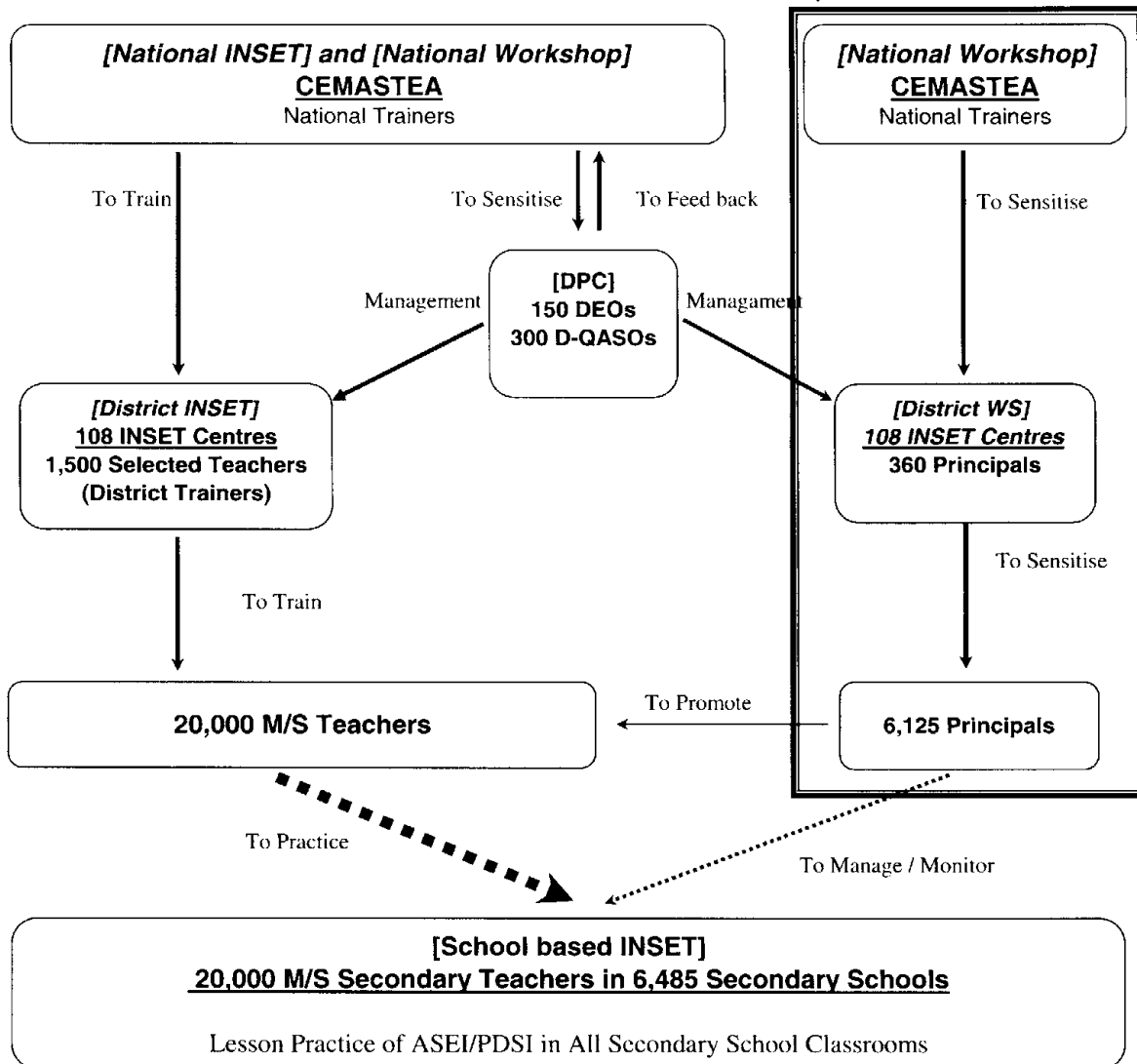
Delivery System of Primary Workshop

Level	Objectives	Participants	Trainers	Venue	Duration	Management
National	Sensitisation on SMASE INSET & ASEI/PDSI	PTTC Principals (19) and Deans of Curriculum / HOD (38)	CEMASTEA Academic Staff	CEMASTEA	5 days	CEMASTEA
Regional	Sensitisation on Cluster INSET Management and Monitoring / Supervision of ASEI/PDSI Practices	TAC Tutors (1,100) P-QASO /Deputy (8) D-QASO /Deputy (150) Z-QASO (1,100)	320 RT	19 PTTCs	5 days	DPC and CEMASTEA
District	Sensitisation on Supervision of ASEI/PDSI Classroom Practices	Headteachers / Deputy Headteachers (20,000 per year)	D-QASO, TAC Tutors, Z-QASO	108 INSET Centres and other Venues	1 day	DPC

ANNEX 4-2 INSET and Workshop Structure at Secondary Level

CEMASTEA Activities

Project Activities



Delivery System of Secondary INSET

Level	Objectives	Participants	Trainers	Venue	Duration	Management
National	To Promote ASEI/PDSI Classroom Practices at Secondary School Class	1,500 Selected Teachers (as District Trainers; DT)	CEMASTEA Academic Staff	CEMASTEA	2 weeks	CEMASTEA
District	rooms by Strengthening of existing INSET System and Curriculum.	20,000 M/S Teachers	1,500 DT	108 INSET Centres	2 weeks	DPC

Delivery System of Secondary Workshop

Level	Objectives	Participants	Trainers	Venue	Duration	Management
National	To Promote ASEI/PDSI Classroom Practices at Secondary School Classroom level through Sensitisation for All Principals.	360 Selected Principals	CEMASTEA	CEMASTEA / other venue	1 week	CEMASTEA
		150 DEOs	CEMASTEA	CEMASTEA / other venue	1 week	CEMASTEA
		360 Selected QASO	CEMASTEA	CEMASTEA / other venue	1 week	CEMASTEA
District		Other Principals (6,125)	360 Selected Principals	108 INSET Centres	1 week	DPC

ANNEX 5 Summary of Budget Estimation (Jan 2009 - Dec 2013)

(Kenya Shilling)

KFY	Period	Annual Cost	CEMASTEVA / MOE	JICA	DPC / FSE
2008	January 2009 - June 2009	176,094,460	28,809,000	27,285,460	120,000,000
2009	July 2009 - June 2010	480,872,420	156,788,000	84,084,420	240,000,000
2010	July 2010 - June 2011	587,934,920	230,788,000	117,146,920	240,000,000
2011	July 2011 - June 2012	587,934,920	230,788,000	117,146,920	240,000,000
2012	July 2012 - June 2013	587,934,920	230,788,000	117,146,920	240,000,000
2013	July 2013 - December 2013	321,047,460	118,409,000	82,638,460	120,000,000
	Total	2,741,819,100	996,370,000	545,449,100	1,200,000,000
	Share		36%	20%	44%

The detailed breakdown of estimation are shown in Annex 5-2 to 5-7.

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ANNEX 5-2 Budget Estimation (Jan 2009 - Jun 2009)

Activities	Items	Cost for	Number of Participants / Quantity	Unit Cost (KSh)	Day / Month / Frequency	Sub Total (KSh)	Annual Cost (KSh)	CEMASTE / MOE	JICA	DPC / FSE	
Operational Cost for CEMASTE	Basic Salaries for Non Academic Staffs	MOE	1	350,000	6 month	2,100,000		2,100,000			
	Utilities Supply (Water, Electricity)	MOE	1	850,000	6 month	5,100,000		5,100,000			
	Communication (Telephone, Internet)	MOE	1	180,000	6 month	1,080,000		1,080,000			
	Domestic Travel	MOE	1	500,000	6 month	3,000,000	19,659,960	3,000,000			
	Hospitality	MOE	1	80,000	6 month	480,000		480,000			
	Office Maintenance (Security, Cleaning etc)	MOE	1	850,000	6 month	5,100,000		5,100,000			
Operational Cost for SMASSE Office /	Vehicle (Fuel, Insurance, Maintenance, Salary etc)	JICA	9	40,740	6 month	2,199,960			2,199,960		
	Transport (Hiring Extra Vehicle, Taxi, etc)	JICA	1	100,000	6 month	600,000			600,000		
	Communication (Telephone, Internet, DHL)	JICA	1	100,000	6 month	600,000	1,200,000		600,000		
	Office Supplies / Maintenance / Printing	JICA	1	100,000	6 month	600,000			600,000		
	Meal/Accommodation	MOE	320	1,000	13 day	4,160,000		4,160,000			
	Transportation	MOE	320	2,000	1 time	640,000	5,760,000	640,000			
National WS for PTTC Principal / Dean / HOD	Training Material	JICA	320	3,000	1 time	960,000			960,000		
	Meal/Accommodation	MOE	57	1,000	5 day	285,000		285,000			
	Transportation	MOE	57	2,000	1 time	114,000	427,500	114,000			
	WS Material	JICA	57	500	1 time	28,500			28,500		
	Meal/Accommodation	MOE	160	1,000	13 day	2,080,000		2,080,000			
	Transportation	DPC / FSE	160	2,000	1 time	320,000	2,480,000				
National WS for D-QASO	WS Material	MOE	160	500	1 time	80,000		80,000			
	Meal/Accommodation	MOE	250	1,000	3 day	750,000		750,000			
	Transportation	DPC / FSE	250	2,000	1 time	500,000	1,375,000				
	WS Material	JICA	250	500	1 time	125,000			125,000		
	Meal/Accommodation	MOE	240	1,000	13 day	3,120,000		3,120,000			
	Transportation	DPC / FSE	240	2,000	1 time	480,000	4,320,000				
Mop Up INSET Cycle 3-4	Training Material	MOE	240	3,000	1 time	720,000		720,000			
	Meal, Accommodation, Transport, Material, etc	DPC / FSE	10,000	12,000	1	120,000,000	120,000,000			120,000,000	
	District INSET for Secondary M/S Teachers	Conference (Meal, Accommodation)	JICA	3	49,000	7 time	1,029,000			1,029,000	
		Flight, Travel Insurance (equiv. \$1,500)	JICA	3	105,000	7 time	2,205,000	1,029,000			
		Conference (Meal, Accommodation)	JICA	90	49,000	1 week	4,410,000	2,205,000			
		Conference (Material, Language, Transport etc)	JICA	150	3,000	5 day	2,250,000				
Secretariat (Meal, Accommodation)		JICA	10	49,000	2 week	980,000	18,140,000				
Flight, Travel Insurance (equiv. \$1,500)		JICA	100	105,000	1 return	10,500,000			10,500,000		
ADEA WGMSE	Conference (Meal, Accommodation)	JICA	4	10,500	7 day	294,000	798,000		294,000		
	Flight, Travel Insurance (equiv. \$1,800)	JICA	2	126,000	2 return	504,000			504,000		
Total / KSh						176,094,460		28,809,000	27,285,460	120,000,000	
								16.4%	15.5%	68.1%	

ANNEX 5-3 Budget Estimation (Jul 2009 - Jun 2010)

Activities	Items	Cost for	Number of Participants / Quantity	Unit Cost (KSh)	Day / Month / Frequency	Sub Total (KSh)	Annual Cost (KSh)	CEMASTEA / MOE	JICA	DPC / FSE
Operational Cost for CEMASTE A	Basic Salaries for Non Academic Staffs	MOE	1	350,000	12 month	4,200,000		4,200,000		
	Utilities Supply (Water, Electricity)	MOE	1	850,000	12 month	10,200,000		10,200,000		
	Communication (Telephone, Internet)	MOE	1	180,000	12 month	2,160,000		2,160,000		
	Domestic Travel	MOE	1	500,000	12 month	6,000,000		6,000,000		
	Hospitality	MOE	1	80,000	12 month	960,000	39,319,920	960,000		
	Office Maintenance (Security, Cleaning etc)	MOE	1	850,000	12 month	10,200,000		10,200,000		
Operational Cost for SMA SSE Office / SMA SE-WECS A	Vehicle (Fuel, Insurance, Maintenance, Salar y etc)	JICA	9	40,740	12 month	4,399,920			4,399,920	
	Transport (Hiring Extra Vehicle, Taxi, etc)	JICA	1	100,000	12 month	1,200,000	2,400,000		1,200,000	
	Communication (Telephone, Internet, DHL)	JICA	1	100,000	12 month	1,200,000			1,200,000	
	Office Supplies / Maintenance / Printing	JICA	1	100,000	12 month	1,200,000			1,200,000	
	Meal/Accommodation	MOE	320	1,000	13 day	4,160,000		4,160,000		
	Transportation	MOE	320	2,000	1 time	640,000	5,760,000	640,000		960,000
National INSET for PTTC Tutors	Training Material	JICA	320	3,000	1 time	960,000				
	Meal/Accommodation	MOE	57	1,000	5 day	285,000		285,000		
	Transportation	MOE	57	2,000	1 time	114,000	427,500	114,000		28,500
	WS Material	JICA	57	500	1 time	28,500				
	Meal/Accommodation	MOE	360	1,000	6 day	2,160,000		2,160,000		
	Transportation	DPC / FSE	360	2,000	1 time	720,000	3,060,000			180,000
National WS for Secondary Principal	WS Material	JICA	360	500	1 time	180,000				
	Meal/Accommodation	MOE	150	1,000	3 day	450,000		450,000		
	Transportation	DPC / FSE	150	2,000	1 time	300,000	825,000			
	WS Material	MOE	150	500	1 time	75,000				
	Meal/Accommodation	MOE	160	1,000	6 day	960,000		960,000		
	Transportation	DPC / FSE	160	2,000	1 time	320,000	1,360,000			
National WS for DEO	WS Material	MOE	160	500	1 time	80,000		80,000		
	Meal/Accommodation	MOE	250	1,000	3 day	750,000		750,000		
	Transportation	DPC / FSE	250	2,000	1 time	500,000	1,375,000			
	WS Material	JICA	250	500	1 time	125,000			125,000	
	Meal/Accommodation	MOE	5,600	1,000	13 day	72,800,000		72,800,000		
	Transportation	MOE	5,600	2,000	1 time	11,200,000	99,360,000	11,200,000		
Regional INSET for CT	Facilitator Allowance	MOE	320	1,000	13 day	4,160,000		4,160,000		
	Training Material	JICA	5,600	2,000	1 time	11,200,000			11,200,000	
	Meal/Accommodation	MOE	2,358	1,000	6 day	14,148,000		14,148,000		
	Transportation	MOE	2,358	2,000	1 time	4,716,000	21,963,000	4,716,000		
	Facilitator Allowance	MOE	320	1,000	6 day	1,920,000		1,920,000		
	WS Material	JICA	2,358	500	1 time	1,179,000			1,179,000	
District WS for Primary Headteachers	Lunch	MOE	20,000	200	1 day	4,000,000		4,000,000		
	Transportation	MOE	20,000	-	1 time	-				
	Facilitator Allowance	MOE	450	1,000	1 day	450,000	14,450,000	450,000		
	WS Material	JICA	20,000	500	1 time	10,000,000			10,000,000	
	Meal, Accommodation, Transport, Material, etc	DPC / FSE	20,000	12,000	1	240,000,000	240,000,000			240,000,000
	Conference (Meal, Accommodation)	JICA	3	49,000	7 time	1,029,000	1,029,000		1,029,000	
Technical support for WECS A member countries	Flight, Travel Insurance (equiv. \$1,500) per week per fax	JICA	3	105,000	7 time	2,205,000	2,205,000		2,205,000	
	Training Expense (Meal, Accommodation, Material, Transport etc. \$300)	JICA	160	21,000	4 week	13,440,000	30,240,000		13,440,000	
	Flight, Travel Insurance (equiv. \$1,500)	JICA	160	105,000	1 return	16,800,000		16,800,000		
	Conference (Meal, Accommodation)	JICA	90	49,000	1 week	4,410,000		4,410,000		
	Conference (Material, Language, Transport etc)	JICA	150	3,000	5 day	2,250,000	18,140,000		2,250,000	
	Secretary (Meal, Accommodation)	JICA	10	49,000	2 week	980,000		980,000		
WECS A Conference	Flight, Travel Insurance	JICA	100	105,000	1 return	10,500,000		10,500,000		
	Travel Allowance (DSA, Accommodation)	JICA	4	10,500	7 day	294,000	798,000		294,000	
	Flight, Travel Insurance (equiv. \$1,800)	JICA	2	126,000	2 return	504,000		504,000		
		JICA	2	126,000	2 return	504,000		504,000		
Total / KSh							460,872,420	156,788,000	84,084,420	240,000,000
								32.6%	17.5%	49.9%

ANNEX 5-4 Budget Estimation (Jul 2010 - Jun 2011)

Activities	Items	Cost for	Number of Participants/Quantity	Unit Cost (KSh)	Day / Month / Frequency	Sub Total (KSh)	Annual Cost (KSh) (CEMASTE/ MOE)	JICA	DPC / FSE
Operational Cost for CEMASTE	Basic Salaries for Non Academic Staffs	MOE	1	350,000	12 month	4,200,000	4,200,000		
	Utilities Supply (Water, Electricity)	MOE	1	850,000	12 month	10,200,000	10,200,000		
	Communication (Telephone, Internet)	MOE	1	180,000	12 month	2,160,000	2,160,000		
	Domestic Travel	MOE	1	500,000	12 month	6,000,000	6,000,000		
	Hospitality	MOE	1	80,000	12 month	960,000	960,000		
	Office Maintenance (Security, Cleaning etc)	MOE	1	850,000	12 month	10,200,000	10,200,000		
	Vehicle Fuel, Insurance, Maintenance, Sparety etc)	JICA	9	40,740	12 month	4,399,920		4,399,920	
	Transport (Hiring Extra Vehicle, Taxi, etc)	JICA	1	100,000	12 month	1,200,000		1,200,000	
	Communication (Telephone, Internet, DHL)	JICA	1	100,000	12 month	1,200,000		1,200,000	
	Office Supplies/ Maintenance/ Printing	JICA	1	100,000	12 month	1,200,000		1,200,000	
National INSET for PTTC Trainers	Meal/Accommodation	MOE	320	2,000	1 time	640,000	5,760,000		
	Transportation	JICA	320	3,000	1 time	960,000		960,000	
	Training Material	MOE	57	1,000	5 day	285,000	285,000		
	Meal/Accommodation	MOE	57	2,000	1 time	114,000	427,500		
	Transportation	JICA	57	2,000	1 time	114,000		114,000	
	WS Material	MOE	57	500	1 time	28,500	28,500		28,500
	Meal/Accommodation	MOE	360	1,000	6 day	2,160,000	2,160,000		
	Transportation	DPC / FSE	360	2,000	1 time	720,000	3,060,000		
	WS Material	JICA	360	500	1 time	180,000		180,000	
	Meal/Accommodation	MOE	150	1,000	3 day	450,000	450,000		
National WS for DLO	Transportation	DPC / FSE	150	2,000	1 time	300,000	825,000		
	WS Material	MOE	150	500	1 time	75,000	75,000		
	Meal/Accommodation	MOE	160	2,000	6 day	960,000	960,000		
	Transportation	DPC / FSE	160	2,000	1 time	320,000	1,360,000		
	WS Material	MOE	160	500	1 time	80,000	80,000		
	Meal/Accommodation	MOE	250	1,000	3 day	750,000	750,000		
	Transportation	DPC / FSE	250	2,000	1 time	500,000	1,375,000		
	WS Material	JICA	250	500	1 time	125,000		125,000	
	Meal/Accommodation	MOE	5,600	1,000	13 day	72,800,000	72,800,000		
	Transportation	MOE	5,600	2,000	1 time	11,200,000	11,200,000		
Regional INSET for CT	Facilitator Allowance	MOE	320	1,000	13 day	4,160,000	99,360,000		
	Training Material	JICA	5,600	2,000	1 time	11,200,000	4,160,000		11,200,000
	Meal/Accommodation	MOE	2,358	1,000	6 day	14,148,000	14,148,000		
	Transportation	MOE	2,358	2,000	1 time	4,716,000	21,963,000		
	Facilitator Allowance	MOE	320	1,000	6 day	1,920,000	1,920,000		
	WS Material	JICA	2,358	500	1 time	1,179,000		1,179,000	
	Lunch	MOE	20,000	200	1 day	4,000,000	4,000,000		
	Transportation	MOE	20,000	1,000	1 time	450,000	450,000		
	Facilitator Allowance	MOE	450	1,000	1 day	450,000	14,450,000		
	WS Material	JICA	20,000	500	1 time	60,000,000	60,000,000		10,000,000
Cluster INSET for Primary Teachers	Transportation	MOE	60,000	200	5 day	10,000,000	10,000,000		
	Facilitator Allowance	MOE	60,000	500	1 time	14,000,000	14,000,000		
	Training Material	JICA	5,600	500	5 day	30,000,000	30,000,000		30,000,000
	Meal/Accommodation	MOE	6,125	1,000	13 day	79,625,000	79,625,000		
	Transportation	DPC / FSE	6,125	2,000	1 time	12,250,000	99,617,500		
	Facilitator Allowance	DPC / FSE	360	1,000	13 day	4,680,000	4,680,000		
	WS Material	JICA	6,125	500	1 time	3,062,500	3,062,500		
	Meal, Accommodation, Transport, Material, etc	DPC / FSE	20,000	12,000	1 time	240,000,000	240,000,000		240,000,000
	Conference (Meal, Accommodation)	JICA	3	49,000	7 time	1,029,000	1,029,000		1,029,000
	Flight, Travel Insurance (requ. \$1,500)	JICA	3	105,000	7 time	2,205,000	2,205,000		2,205,000
TCIP for WECSA	Training Expense (Meal, Accommodation, Material, Transport etc \$500 per week per job)	JICA	160	21,000	4 week	13,440,000	30,240,000		13,440,000
	Flight, Travel Insurance (requ. \$1,500)	JICA	160	105,000	1 return	16,800,000	16,800,000		16,800,000
	Conference (Meal, Accommodation)	JICA	90	49,000	1 week	4,410,000	4,410,000		4,410,000
	Conference (Material, Language, Transport etc)	JICA	150	3,000	5 day	2,250,000	18,140,000		2,250,000
	Secretariat (Meal, Accommodation)	JICA	10	49,000	2 week	980,000	980,000		980,000
	Flight, Travel Insurance	JICA	100	105,000	1 return	10,500,000	10,500,000		10,500,000
	Travel Allowance (DSA, Accommodation)	JICA	4	10,500	7 day	294,000	294,000		294,000
	Flight, Travel Insurance (requ. \$1,800)	JICA	2	126,000	2 return	504,000	504,000		504,000
					Total /KSh	587,934,920	230,788,000	117,146,920	240,000,000
							39.3%	19.9%	40.8%

ANNEX 5-5 Budget Estimation (Jul 2011 - Jun 2012)

Activities	Items	Cost for	Number of Participants / Quantity	Unit Cost (KSh)	Day / Month / Frequency	Sub Total (KSh)	Annual Cost (KSh)	CEMASTEA / MOE	JICA	DPC / FSE	
Operational Cost for CEMASTEA	Basic Salaries for Non Academic Staffs	MOE	1	350,000	12 month	4,200,000		4,200,000			
	Utilities Supply (Water, Electricity)	MOE	1	850,000	12 month	10,200,000		10,200,000			
	Communication (Telephone, Internet)	MOE	1	180,000	12 month	2,160,000		2,160,000			
	Domestic Travel	MOE	1	500,000	12 month	6,000,000	39,319,920	6,000,000			
	Hospitality	MOE	1	80,000	12 month	960,000		960,000			
	Office Maintenance (Security, Cleaning etc)	MOE	1	850,000	12 month	10,200,000		10,200,000			
	Vehicle Fuel, Insurance, Maintenance, Sundry etc)	JICA	9	40,740	12 month	4,399,920			4,399,920		
	Transport (Hiring Extra Vehicle, Taxi, etc)	JICA	1	100,000	12 month	1,200,000			1,200,000		
	Communication (Telephone, Internet, DHL)	JICA	1	100,000	12 month	1,200,000	2,400,000	2,400,000			
	Office Supplies / Maintenance / Printing	JICA	1	100,000	12 month	1,200,000			1,200,000		
	National INSET for PTTC Tutors	Meal/Accommodation	MOE	320	1,000	13 day	4,160,000		4,160,000		
Transportation		MOE	320	2,000	1 time	640,000	5,760,000	640,000			
Training Material		JICA	320	3,000	1 time	960,000		960,000			
Meal/Accommodation		MOE	57	1,000	5 day	285,000		285,000			
Transportation		MOE	57	2,000	1 time	114,000	427,500	114,000			
WS Material		JICA	57	500	1 time	28,500		28,500			
Meal/Accommodation		MOE	360	1,000	6 day	2,160,000		2,160,000			
Transportation		JICA	360	2,000	1 time	720,000	3,060,000				
WS Material		MOE	360	500	1 time	180,000		180,000			
Meal/Accommodation		MOE	150	1,000	3 day	450,000		450,000			
Transportation		DPC / FSE	150	2,000	1 time	300,000	825,000				
National WS for DRO	WS Material	MOE	150	500	1 time	75,000		75,000			
	Meal/Accommodation	MOE	160	1,000	6 day	960,000		960,000			
	Transportation	DPC / FSE	160	2,000	1 time	320,000	1,360,000				
	WS Material	MOE	160	500	1 time	80,000		80,000			
	Meal/Accommodation	MOE	250	1,000	3 day	750,000		750,000			
	Transportation	DPC / FSE	250	2,000	1 time	500,000	1,375,000				
	WS Material	JICA	250	500	1 time	125,000		125,000			
	Meal/Accommodation	MOE	5,600	1,000	13 day	72,800,000		72,800,000			
	Transportation	MOE	5,600	2,000	1 time	11,200,000	99,360,000	11,200,000			
	Facilitator Allowance	JICA	320	2,000	13 day	4,160,000		4,160,000			
	Regional INSET for CT Teachers	Training Material	JICA	5,600	2,000	1 time	11,200,000			11,200,000	
Meal/Accommodation		MOE	2,358	1,000	6 day	14,148,000		14,148,000			
Transportation		MOE	2,358	2,000	1 time	4,716,000	21,963,000	4,716,000			
Facilitator Allowance		MOE	320	1,000	6 day	1,920,000		1,920,000			
WS Material		JICA	2,358	500	1 time	1,179,000		1,179,000			
Lunch		MOE	20,000	200	1 day	4,000,000		4,000,000			
Transportation		MOE	20,000	1,000	1 time	450,000	14,450,000	450,000			
Facilitator Allowance		MOE	450	1,000	1 day	450,000		450,000			
WS Material		JICA	20,000	500	1 time	10,000,000		10,000,000			
Lunch		MOE	60,000	200	5 day	60,000,000		60,000,000			
Cluster INSET for Primary Teachers		Transportation	MOE	60,000	500	1 time	14,000,000	104,000,000	14,000,000		
	Facilitator Allowance	MOE	5,600	500	5 day	30,000,000		30,000,000			
	Training Material	JICA	60,000	500	1 time	79,625,000		79,625,000			
	Meal/Accommodation	DPC / FSE	6,125	1,000	13 day	12,250,000		12,250,000			
	Transportation	DPC / FSE	6,125	2,000	1 time	4,680,000	99,617,500	4,680,000			
	Facilitator Allowance	DPC / FSE	360	1,000	13 day	3,062,500		3,062,500			
	WS Material	JICA	6,125	500	1 time	3,062,500		3,062,500			
	Meal, Accommodation, Transport, Material, etc	DPC / FSE	20,000	12,000	1	240,000,000	240,000,000	240,000,000		240,000,000	
	Conference (Meal, Accommodation)	JICA	3	49,000	7 time	1,029,000		1,029,000			
	Flight, Travel Insurance (equiv. \$1,500)	JICA	3	105,000	7 time	2,205,000	2,205,000	2,205,000			
	TC/TP for WECSA	Training Expense (Meal, Accommodation, Material, Transport etc. \$500 per each, per pass)	JICA	160	21,000	4 week	13,440,000	30,240,000	13,440,000		
Flight, Travel Insurance (equiv. \$1,300)		JICA	160	105,000	1 return	16,800,000		16,800,000			
Conference (Meal, Accommodation)		JICA	90	49,000	1 week	4,410,000		4,410,000			
Conference (Material, Language, Transport etc)		JICA	150	3,000	5 day	2,250,000	18,140,000	2,250,000			
Secretary (Meal, Accommodation)		JICA	10	49,000	2 week	980,000		980,000			
Flight, Travel Insurance		JICA	100	105,000	1 return	10,500,000		10,500,000			
Travel Allowance (DSA, Accommodation)		JICA	4	10,500	7 day	294,000	798,000	294,000			
Flight, Travel Insurance (equiv. \$1,800)		JICA	2	126,000	2 return	504,000		504,000			
					Total / KSh	587,934,920		230,788,000	117,146,920	240,000,000	
								39.3%	19.9%	40.8%	

ANNEX 5-6 Budget Estimation (Jul 2012 - Jun 2013)

Activities	Items	Cost for	Number of Participants / Quantity	Unit Cost (KSh)	Day / Month / Frequency	Sub Total (KSh)	Annual Cost (KSh)	CEMASTEA / MOE	JICA	DPG / FSE
Operational Cost for CEMASTEA	Basic Salaries for Non-Academic Staffs	MOE	1	350,000	12 month	4,200,000		4,200,000		
	Utilities Supply (Water, Electricity)	MOE	1	850,000	12 month	10,200,000		10,200,000		
	Communication (Telephone, Internet)	MOE	1	180,000	12 month	2,160,000		2,160,000		
	Domestic Travel	MOE	1	500,000	12 month	6,000,000		6,000,000		
	Hospitality	MOE	1	80,000	12 month	960,000	39,319,920		960,000	
	Office Maintenance (Security, Cleaning, etc)	MOE	1	850,000	12 month	10,200,000		10,200,000		
	Vehicle (Fuel, Insurance, Maintenance, Salary, etc)	JICA	9	40,140	12 month	4,399,920			4,399,920	
	Transport (Hiring Extra Vehicle, Etc, etc)	JICA	1	100,000	12 month	1,200,000				1,200,000
	Communication (Telephone, Internet, DHL)	JICA	1	100,000	12 month	1,200,000				1,200,000
	Office Supplies / Maintenance / Printing	JICA	1	100,000	12 month	1,200,000	2,400,000			
	Meal/Accommodation	MOE	320	1,000	13 day	4,160,000			4,160,000	
	National INSET for PTTG Trainers	Transportation	MOE	320	2,000	1 time	640,000	5,760,000		
Training Material		JICA	320	3,000	1 time	960,000			960,000	
Meal/Accommodation		MOE	57	1,000	5 day	285,000				285,000
Transportation		MOE	57	2,000	1 time	114,000				114,000
WS Material		JICA	57	500	1 time	28,500				28,500
Meal/Accommodation		MOE	360	1,000	6 day	2,160,000				2,160,000
Transportation		JICA	360	2,000	1 time	720,000	3,060,000			
WS Material		JICA	360	500	1 time	180,000				180,000
Meal/Accommodation		MOE	150	1,000	3 day	450,000				450,000
Transportation		MOE	150	2,000	1 time	300,000				300,000
WS Material		MOE	150	500	1 time	75,000	825,000			
National WS for D-QANS		Meal/Accommodation	MOE	160	1,000	6 day	960,000			
	Transportation	MOE	160	2,000	1 time	320,000				320,000
	WS Material	MOE	160	500	1 time	80,000				80,000
	Meal/Accommodation	MOE	250	1,000	3 day	750,000				750,000
	Transportation	MOE	250	2,000	1 time	500,000				500,000
	WS Material	JICA	250	500	1 time	125,000	1,375,000			
	Meal/Accommodation	MOE	5,600	1,000	13 day	72,800,000				72,800,000
	Transportation	MOE	5,600	2,000	1 time	11,200,000				11,200,000
	Facilitator Allowance	MOE	5,600	2,000	13 day	4,160,000	99,360,000			
	Training Material	JICA	5,600	2,000	1 time	11,200,000				11,200,000
	Meal/Accommodation	MOE	2,358	1,000	6 day	14,148,000				14,148,000
	Regional WS for TAC / PDZ- QANS	Transportation	MOE	2,358	2,000	1 time	4,716,000			
Facilitator Allowance		MOE	320	1,000	6 day	1,920,000	21,963,000			
WS Material		JICA	2,358	500	1 time	1,179,000				1,179,000
Lunch		MOE	20,000	200	1 day	4,000,000				4,000,000
Transportation		MOE	20,000	1,000	1 time	-				-
Facilitator Allowance		MOE	450	1,000	1 day	450,000	14,450,000			
WS Material		JICA	20,000	500	1 time	10,000,000				10,000,000
Lunch		MOE	60,000	300	5 day	60,000,000				60,000,000
Transportation		MOE	60,000	1,000	1 time	-				-
Facilitator Allowance		MOE	5,600	500	5 day	14,000,000	104,000,000			
Training Material		JICA	60,000	500	1 time	30,000,000				30,000,000
District WS for Primary Headteachers		Meal/Accommodation	DPG / FSE	6,125	1,000	13 day	79,625,000			
	Transportation	DPG / FSE	6,125	2,000	1 time	12,250,000				12,250,000
	Facilitator Allowance	DPG / FSE	360	1,000	13 day	4,680,000	99,617,500			
	WS Material	JICA	6,125	500	1 time	3,062,500				3,062,500
	Meal/Accommodation, Transport, Material, etc	DPG / FSE	20,000	12,000	1 time	240,000,000	240,000,000			
	Conference (Meal, Accommodation)	JICA	3	49,000	7 time	1,029,000	1,029,000			1,029,000
	Flight, Travel Insurance (equiv. \$1,500) (per week per pass)	JICA	3	49,000	7 time	2,205,000	2,205,000			2,205,000
	Training Expense (Meal, Accommodation, Material, Transport etc. \$500)	JICA	160	21,000	4 week	13,440,000	30,240,000			
	Flight, Travel Insurance (equiv. \$1,500)	JICA	160	105,000	1 return	16,800,000	16,800,000			16,800,000
	Conference (Meal, Accommodation)	JICA	90	40,000	1 week	4,410,000	4,410,000			4,410,000
	Conference (Material, Language, Transport etc)	JICA	150	3,000	5 day	2,250,000	2,250,000			2,250,000
	Secretary (Meal, Accommodation)	JICA	10	49,000	2 week	980,000	980,000			980,000
WFCSA Conference	Flight, Travel Insurance	JICA	100	105,000	1 return	10,500,000	10,500,000			10,500,000
	Travel Allowance (DSA, Accommodation)	JICA	4	10,500	7 day	294,000	294,000			294,000
	Flight, Travel Insurance (equiv. \$1,800)	JICA	2	126,000	2 return	504,000	504,000			504,000
		JICA	2	126,000	2 return	504,000	798,000			798,000
				Total / KSh	587,934,920		230,788,000	117,146,920	240,000,000	40.8%
							39.3%	19.9%		40.8%

ANNEX 5-7 Budget Estimation (Jul 2013 - Dec 2013)

Activities	Items	Cost for	Number of Participants / Quantity	Unit Cost (KSh)	Day / Month / Frequency	Sub Total (KSh)	Annual Cost (KSh)	CEMASTE / MOE	JICA	DPC / FSE
Operational Cost for CEMASTE	Basic Salaries for Non Academic Staffs	MOE	1	350,000	6 month	2,100,000		2,100,000		
	Utilities Supply (Water, Electricity)	MOE	1	850,000	6 month	5,100,000		5,100,000		
	Communication (Telephone, Internet)	MOE	1	180,000	6 month	1,080,000		1,080,000		
	Domestic Travel	MOE	1	500,000	6 month	3,000,000	19,659,960	3,000,000		
	Hospitality	MOE	1	80,000	6 month	480,000		480,000		
	Office Maintenance (Security, Cleaning etc)	MOE	1	850,000	6 month	5,100,000		5,100,000		
	Vehicle (Fuel, Insurance, Maintenance, Salary etc)	JICA	9	40,740	6 month	2,199,960			2,199,960	
	Transport (Hiring Extra Vehicle, Taxi, etc)	JICA	1	100,000	6 month	600,000			600,000	
	Communication (Telephone, Internet, DHL)	JICA	1	100,000	6 month	600,000	1,200,000		600,000	
	Office Supplies / Maintenance / Printing	JICA	1	100,000	6 month	600,000			600,000	
National WS for DEO	Meal/Accommodation	MOE	150	1,000	3 day	450,000		450,000		
	Transportation	DPC / FSE	150	2,000	1 time	300,000	825,000			
	WS Material	MOE	150	500	1 time	75,000		75,000		
	Meal/Accommodation	MOE	160	1,000	6 day	960,000		960,000		
	Transportation	DPC / FSE	160	2,000	1 time	320,000	1,360,000			
	WS Material	MOE	160	500	1 time	80,000		80,000		
	Meal/Accommodation	MOE	250	1,000	3 day	750,000		750,000		
	Transportation	DPC / FSE	250	2,000	1 time	500,000	1,375,000			
	WS Material	JICA	250	500	1 time	125,000			125,000	
	Meal/Accommodation	MOE	2,358	1,000	6 day	14,148,000		14,148,000		
Regional WS for TAC / PDZ-QASO	Transportation	MOE	2,358	2,000	1 time	4,716,000	21,963,000			
	Facilitator Allowance	MOE	320	1,000	6 day	1,920,000		1,920,000		
	WS Material	JICA	2,358	500	1 time	1,179,000			1,179,000	
	Lunch	MOE	20,000	200	1 day	4,000,000		4,000,000		
	Transportation	MOE	20,000	-	1 time	-	14,450,000			
	Facilitator Allowance	MOE	450	1,000	1 time	450,000		450,000		
	WS Material	JICA	20,000	500	1 time	10,000,000			10,000,000	
	Lunch	MOE	60,000	200	5 day	60,000,000		60,000,000		
	Transportation	MOE	60,000	-	1 time	-	104,000,000			
	Facilitator Allowance	MOE	5,600	500	5 day	14,000,000		14,000,000		
District WS for Primary Headteachers	Training Material	JICA	60,000	500	1 time	30,000,000			30,000,000	
	Meal/Accommodation	DPC / FSE	6,125	1,000	13 day	79,625,000				
	Transportation	DPC / FSE	6,125	2,000	1 time	12,250,000				
	Facilitator Allowance	DPC / FSE	360	1,000	13 day	4,680,000	99,617,500			
	WS Material	JICA	6,125	500	1 time	3,062,500			3,062,500	
	Meal, Accommodation, Transport, Material, etc	DPC / FSE	10,000	12,000	1	120,000,000	120,000,000			120,000,000
	Conference (Meal, Accommodation)	JICA	3	49,000	7 time	1,029,000	1,029,000		1,029,000	
	Flight, Travel Insurance (equiv. \$1,500)	JICA	3	105,000	7 time	2,205,000	2,205,000		2,205,000	
	Training Expense (Meal, Accommodation, Material, Transcript etc. \$500 per week per pax)	JICA	160	21,000	4 week	13,440,000	30,240,000		13,440,000	
	Flight, Travel Insurance (equiv. \$1,300)	JICA	160	105,000	1 return	16,800,000			16,800,000	
ADEA WGMSE	Travel Allowance (DSA, Accommodation)	JICA	4	10,500	7 day	294,000	798,000		294,000	
	Flight, Travel Insurance (equiv. \$1,800)	JICA	2	126,000	2 return	504,000			504,000	
		JICA	2	126,000	2 return	504,000			504,000	
Total / KSh						321,047,460		118,409,000	82,638,460	120,000,000
								36.9%	25.7%	37.4%

ANNEX 6 List of Equipment

Place	JFY	Equipment	Unit Cost	Quantity	Sub-Total	Estimated Cost in JFY of 2008 - 2013 / KSh					
						2008	2009	2010	2011	2012	2013
CEMASTEA	2009	Desktop Computer (PC, Monitor, OS)	100,000	30	3,000,000		3,000,000				
		MS-Office Professional	50,000	30	1,500,000		1,500,000				
		UPS	10,000	30	300,000		300,000				
		Math/Sci Reference Book	1,000	500	500,000		500,000				
		4WD Vehicle (4.2 Diesel Std 7str)	4,000,000	1	4,000,000		4,000,000				
		4WD Vehicle (2.0 Petrol Std 4str)	2,000,000	1	2,000,000		2,000,000				
		Flat TV (42 inch, LC)	200,000	1	200,000		200,000				
		Essential Materials for M/S Education Training	70,000	19	1,330,000		1,330,000				
		Essential Materials for M/S Education Training	10,800	3,300	35,640,000		35,640,000				
				Total / KSh					48,470,000		

* The list of equipment above is tentative version. The items to be procured will be further discussed between the Japanese experts and Kenyan counterparts based on the results of a baseline survey conducted by the Project team within the annual budget that will be allocated to the Project.