

SMASE Newsletter

Vol. **1**

SMASE Nigeria Project

(Strengthening Mathematics And Science Education)



~ *The future is in our hands with*
ASEI & PDSI ~

MARCH 2007

**FEDERAL MINISTRY OF EDUCATION AND
JAPAN INTERNATIONAL COOPERATION AGENCY**



1. Background

Various studies (including the National Assessment of Learning Achievement in 1997, 2001 and 2003) have revealed that pupils performance, especially in primary mathematics and science education, is poor. In 2005 the FME, in collaboration with JICA, conducted a baseline study on primary mathematics and science education. The study showed that schools face serious challenges in the teaching of primary mathematics and Science: teachers were engaged in what could be called the "chalk and talk" strategy of teaching, and pupils were passive participants in the class. Almost all teachers expressed a desire for training opportunities in order to share and provide ideas for improving teaching methodologies. The study concluded that there was a strong association between inadequate teaching capacity and poor student performance. In-Service Education and Training (INSET) for teachers could therefore be an effective intervention for improving teachers' skills.

JICA has helped to establish sustainable and quality INSET programs for teachers of mathematics and science in many African countries: Kenya, Uganda, Malawi, Zambia, Niger, Rwanda, Senegal, Burkina-Faso, Ghana and South Africa. These INSET programs have become one of JICA's most successful projects in educational cooperation in Africa. In order for the participating countries to exchange skills, experience and issues in teacher education in mathematics and science, a regional association, "SMASSE-WECSA" (Western, Eastern, Central and Southern Africa), was established. The FME has participated in the association since 2004.

As a result of the FME's interaction with SMASSE-WECSA and the above-mentioned 2005 baseline study, which revealed a need for INSET, in August 2006 the FME and SUBEBs (State Universal Basic Education Board of Niger, Kaduna, and Plateau), in collaboration with JICA, began a three-year INSET project in primary mathematics and science education. This project is known as the "SMASE Nigeria Project".

2. Project outline

The project has been running on a trial basis in three pilot states: Niger, Kaduna, and Plateau. The overall goal of the project is to upgrade the teaching skills of primary teachers in mathematics and science. The project purpose is to enhance the ability of Core Teachers to provide INSET for teachers in primary mathematics and science. Using existing facilities, a National INSET center was established at National Commission for College of Education (NCCE) in Abuja, and three state INSET centers were established in local secondary schools. At the National INSET center, four National Trainers train a total of twenty four State Trainers, who then return to their states to train a total of six hundred selected teachers (Core Teachers). The Core Teachers are then expected to train incumbent teachers in their respective regions (Local Government Education Authorities / Education Zone).

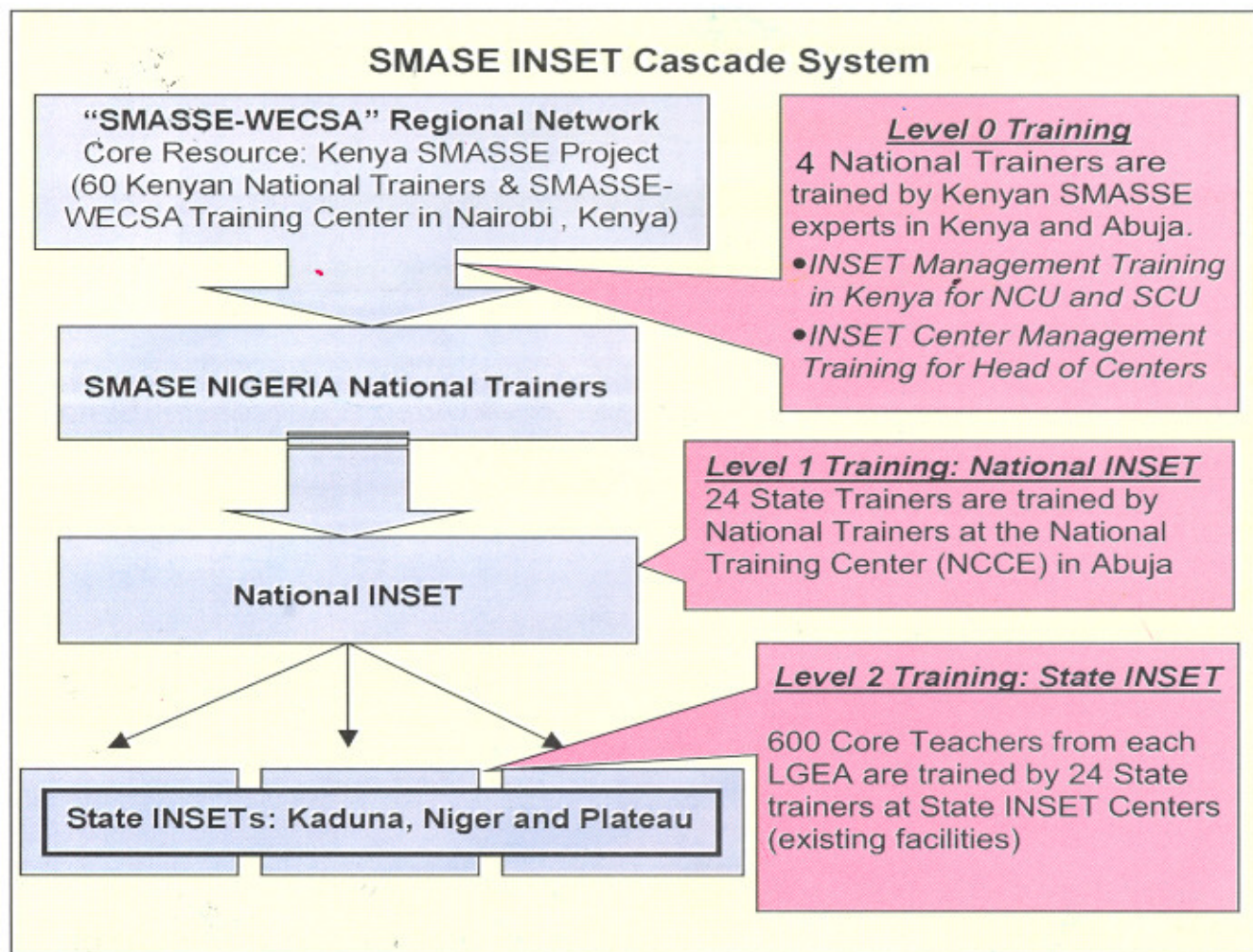
3. Key strategies and components

The cascade system of INSET

Selected National Trainers are trained by SMASSE-WECSA regional trainers in both Kenya and Nigeria. There are two levels of training -- national level and state level. At the national level, National Trainers train State Trainers. At the state level, the State Trainers train Core Teachers in their respective states (See the diagram below).

Trainees attend one 10-day training session each year, for a total of three training cycles over three years. The themes for each year of INSET training are:

- 1st cycle: Enhancing positive attitudes.
- 2nd cycle: Enhancing classroom activities for effective teaching and learning.
- 3rd cycle: Actualization of ASEI & PDSI in the classroom.



Pedagogical paradigm

The SMASE project aims to shift the teaching paradigm from a “banking style” or “chalk & talk” to the ASEI & PDSI approach. The aim is to cultivate pupils’ scientific thinking ability by enhancing the quality of classroom activities through effective teaching and learning.

• **What is the ASEI philosophy?**

The SMASE project emphasizes and promotes the ASEI (Activity, Student-centered, Experiment and Improvisation) philosophy in the classroom. The concept of ASEI is to **actively** involve **students** (pupils) through **experiments** and demonstrations, **improvising** by utilizing locally available materials in the classroom.

• **What is the PDSI approach?**

PDSI stands for **Plan, Do, See and Improve**. In order to ensure that the ASEI lessons give maximum benefit to the pupils, the teacher must **plan** and prepare the lesson before going to teach. Then, the teacher has to **do** the actual teaching, and **see** where the planning was weak, so as to **improve** in future lessons.

Sustainable system building

Sustainability system in a project requires different resources to be pulled together. These are:

- **Financial resources:** In SMASE Nigeria all stakeholders have made financial commitment into the execution of the project up to date. The sharing formula is JICA: 41%, FME (including UBEC) 10%, SUBEBs: 45%, Colleges of Education and others: 4%. In addition to the sharing formula, some stakeholders are ready to make more commitment to the success of the project.
- **Human resources:** Four National Trainers and twelve State Trainers were committed to the project at its commencement. The trainers were working for the project on activity basis. The State Trainers will be increased to twenty four while the National Trainers will work full time for the project before the end of the pilot phase of the project.
- **Material resources:** This ranges from equipment furniture and fittings. JICA has supplied about 90% of the initial take off equipment of the project. NCCE and SUBEBs have allocated office space with some furniture, boardroom and committee rooms for the activities of the project.
- **Administrative structure:** The administrative structure of the project is well spelt out in the project document. At the National level, there is National Steering Committee and National Coordinating Unit while at the level there is State Implementation Committee and State Coordinating Unit. One National coordinator and five Assistant Coordinators have been assigned to manage the project at the National level. One state Coordinator and one Assistant State Coordinator are to manage the project at the state level. These structures especially at the State level have started working and were well coordinated during the INSET cycle 1.
- **INSET quality:** National and State INSETs cycle 1 were conducted successfully in November and December 2006. Analysis of monitoring and evaluation report of the training shows that the INSET is of high quality, majority of the participants are now warming up for the INSET cycle 2 that will come in March at national level and August 2007 at state level.

4. Achievements of the SMASE project in 2006

Six months into the project life span, the SMASE project has achieved the following:

- The establishment of one National INSET center (NCCE in Abuja).
- The establishment of three State INSET centers (in Niger, Kaduna and Plateau).
- The training of four National Trainers and twelve State Trainers in Kenya.
- The training of twelve State Trainers in National INSET cycle 1 in Abuja.

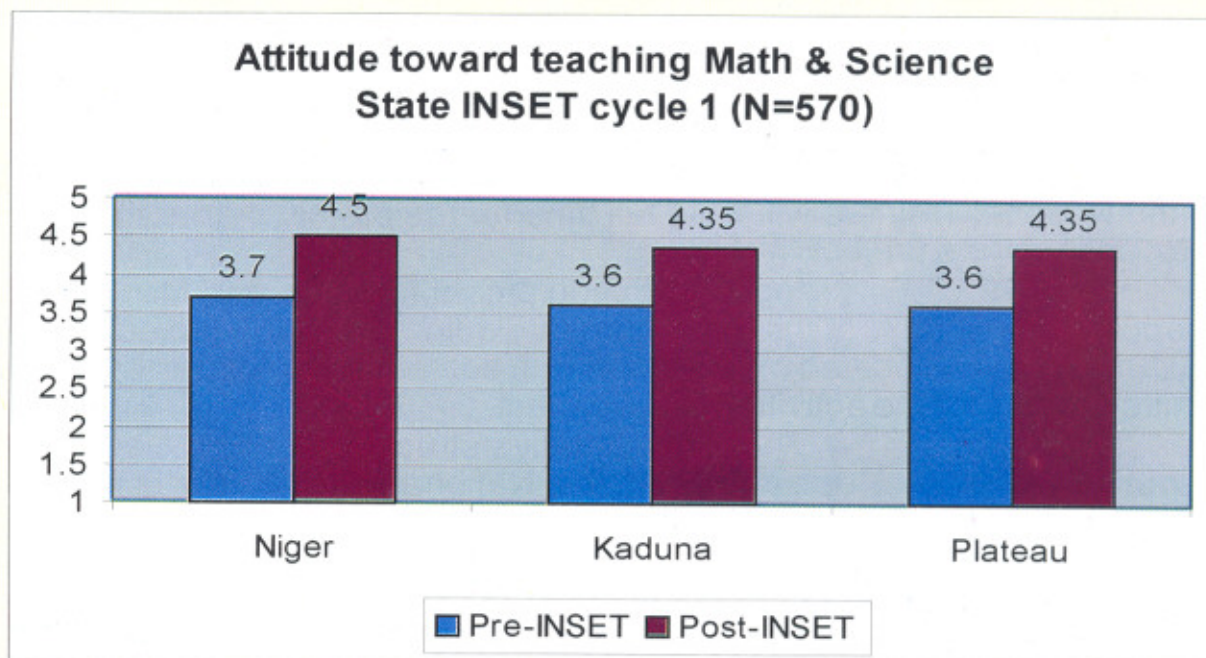
- The training of five hundred seventy Core Teachers (selected primary teachers) in State INSET cycle 1 in three states.

5. Impact of training

In order to ensure a high quality INSET program, monitoring and evaluation (M&E) has been conducted for each INSET cycle. Before INSET cycle 1, the project developed eleven types of M&E instruments and set an evaluation scale from 1 to 5, defining the ratings as: $1 < \text{Mean} \leq 3 = \text{Need effort}$, $3 < \text{Mean} \leq 4.5 = \text{Attaining}$, and $4.5 < \text{Mean} \leq 5 = \text{Attained}$.

Below are the findings through M&E for states INSETs cycle 1.

Finding 1: Through INSET cycle 1, Core Teachers' attitudes toward teaching mathematics and science has positively changed.



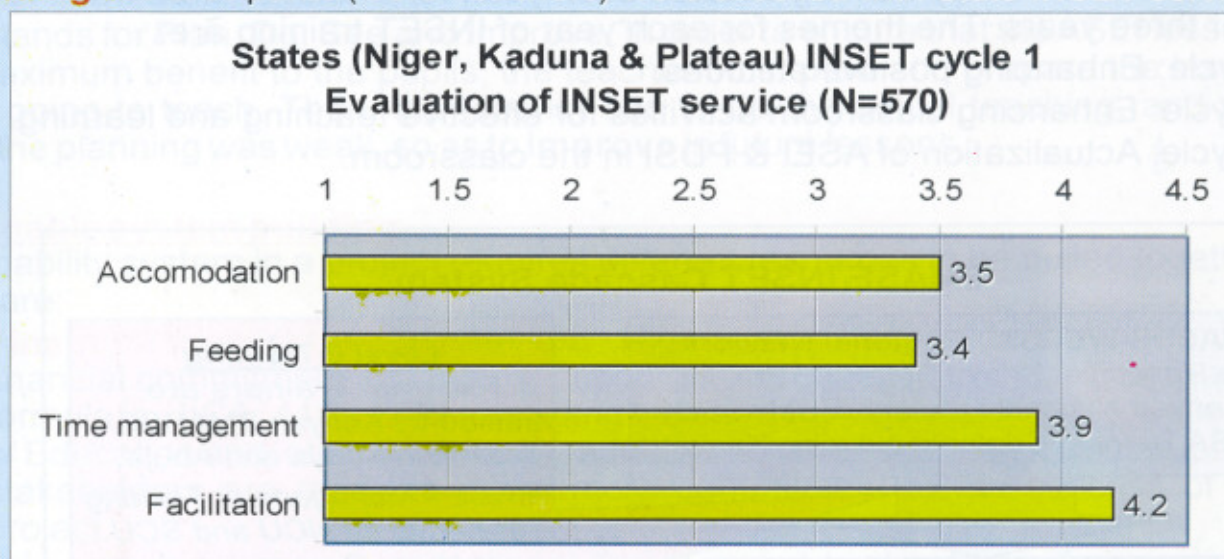
Finding 2: During state INSETs, State Trainers provided high-quality sessions which enhanced Core Teachers' level of understanding of the training contents.

Participants' evaluation of the quality of each INSET session (average rating of 12 sessions in cycle 1 (N=570))		
Niger	Kaduna	Plateau
4.2	3.8	4.1

* Evaluation scale is set 1 to 5

Participants' understanding of INSET sessions (average rating of 12 sessions in cycle 1 (N=570))		
Niger	Kaduna	Plateau
4.37	3.99	4.1

Finding 3: Participants (Core Teachers) were satisfied with State INSET services.



Conclusion: All of the M&E categories resulted in ratings of 3.0 to 4.4 (“attaining”). Therefore, it can be concluded that the three states provided a successful State INSET cycle 1. However, in order to increase the quality of INSET, the project will continue to make efforts to improve the training for trainers, the quality of textbooks and the quality of INSET services.

6. Voices from participants

“I could change my attitude”: For the past ten years as a professional teacher I have never experienced this type of training. Teaching is virtually becoming boring for me. However, after the training, I am more elated to do my work and enthusiastic to share my experience with other colleagues. I am indeed grateful to JICA, Plateau SUBEB and FME for this type of collaboration which is re-awakening teachers from their slumber (Participant from Plateau State).

“What a quality INSET!”: Initially, I was downcast when it was discovered that the training will not give me financial benefit like the previous ones I have participated in. Later I discovered that this training is of more quality one than any of its kind because while others are lecture centered, this training is participants centered, participants did not only have opportunity to express him/herself but is fully involved in various activities of the training (Participant from Niger State).

“Impressive State Trainers”: I am simply impressed by this type of training. The quality of facilitation and the expertness of the facilitators is fantastic. Before the training, I do avoid teaching some topics in the scheme of work. Now I have more confidence and skill to handle those topics especially in mathematics and science (Participant from Kaduna).

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