Poor performance of candidates in Kenya Certificates of Secondary Education (KCSE) examinations results in mathematics and sciences (MAS) has been of great concern to the government, parents and stakeholders of the society.

Following the growing concern, the government of Kenya through the then Ministry of Education, Science and Technology (MOES&T) and the government of Japan through Japan International Cooperation Agency (JICA) started a technical cooperation project known as strengthening mathematics and Sciences for Secondary Education (SMASSE) in 1998 to improve the poor performance of students in mathematics and sciences through in-service training (INSET) of teachers in service on leaner friendly teaching methodologies and use of locally available materials to develop teaching aids.

Despite the establishment of the INSET centers, the students still perform poorly in KCSE mathematics and science examinations. The purpose of the study was to investigate and determine factors affecting the implementation of SMASSE programme in public secondary schools. The research was conducted in Rongo Division, Rongo District. The descriptive survey research design was used. Stratified random sampling method was employed on the target population in the sampled schools. The population in sampled schools included 35% of form one and 35% of form three students, all mathematics and sciences teachers, head of mathematics and sciences departments and headteachers. The quality assurance and standards officer (QASO) in the district was also included. Questionnaires were used to obtain data from form one and three students, mathematics and science teachers, and the head of department of mathematics and sciences. Interview schedule were also employed to obtain data from headteachers and QASO while own observation by the researcher was also made. Data was analysed using descriptive statistics and some inferential statistical techniques, such as frequency distributions and percentages. The analysed data was then presented in tables, graphs and narrative forms.

The study revealed that:
1. The number of mathematical and science teachers, teaching/learning resources and local materials are inadequate.
2. Practical lessons/class experiments are rarely organised.
3. Induction is minimally done to students, if any, by the school administration.
4. Attitude of students towards learning mathematics and sciences is negative.
5. Attitude of teachers towards attendance of SMASSE INSET cycles is negative.
6. Headteachers are not supportive and lack knowledge on the SMASSE programme demands.
7. Supervision is inefficient hence no follow-up on the SMASSE programme implementation by QASO.

From the research findings the researcher recommends that:
1. The government should employ more mathematics and sciences teachers to increase their number proportion.
2. The SMASSE programme should be conducted at university level as a postgraduate course and teachers rewarded with promotions on graduation.
3. The SMASSE programme trainers in the INSET cycles should be absorbed in the directorate of quality assurance and standards for effective follow-up.
4. Influence of outside school factors should also be investigated and determined.