Shunning of Science subjects by girls in Secondary schools jeopardize the capability of women to effectively compete in a shrinking job market, which favours practical technology based expertise. If unchecked, the trend is poised to adversely affect Kenya's ability to tackle the developmental challenges. This study aimed at establishing the past and current gender based tertiary enrolment of women in science, engineering and technology in five public universities and their constituent colleges. Questionnaires were used for the study. The questionnaires were administered to chairpersons of departments, lecturers, and to the female students. The study captured information on women enrolled in the institutions as well as those who had graduated from the institutions over a five year period. The study established clear gender imbalance with respect to the number of girls enrolled in engineering and technology courses. However, the study found that over the past five years, there were an increasing number of female students enrolling for engineering and technology. This baseline study is the starting point towards the development of a Monitoring and Evaluation framework, whose long term objective is to establish the effect of enhanced performance of secondary school girls in science and mathematics on female enrolment in Science, Engineering and Technology at tertiary institutions in Kenya.