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**Beyond Primary Education:
Challenges and Approaches to Expanding Learning Opportunities in Africa**

Parallel Session 5A

**Gender Issues in Post-Primary
Education**

**Negotiating the Interface Between Upper Secondary and Higher
Education in Sub-Saharan Africa:
the Gender Dimensions**

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Grace W. Bunyi (Ph.D)

Acronyms and Abbreviations

AA	Affirmative Action
ADEA	Association for Development of Education in Africa
AHEAD	Association for the Advancement of Higher Education and Development
AIDS	Acquired Immuno-deficiency Syndrome
AED	African Education Development
EFA	Education for All
FAWE	Forum for African Women Educationalists
FAWEZA	Forum for African Women Educationalist – Zambia
FEMSA	Female Education in Mathematics and Science in Africa
GDFC	Gender Dimension Committee
GDTF	Gender Dimension Task Force
GER	Gross Enrollment Ratio
GPI	Gender Parity Index
HIV	Human Immuno-deficiency Virus
IEC	Information Education and Communication
JAB	Joint Admissions Board
KIST	Kigali Institute of Science and Technology
MDGs	Millennium Development Goals
MOE	Ministry of Education
NGO	Non-Government Organization
SAFE	Student Alliance for Female Education
SAGE	Strategies for Advancing Girls' Education
SSA	sub-Saharan Africa
SMT	Science Mathematics and Technology
SIDA	Swedish International Development Agency
TIVET	Technical, Industrial, Vocational and Entrepreneurship and Training
UDSM	University of Dar Es Salaam
USD	United States Dollar
UNESCO	United Nations Educational, Scientific, and Cultural Organization

Abstract

Compared to men, women in sub-Saharan Africa (SSA) suffer educational disadvantage with regard to transition from upper secondary to higher education. Women's greatest disadvantage is in science, mathematics and technology (SMT) subjects and women from poor socio-economic backgrounds are the most disadvantaged.

A constellation of complex factors emanating from the feeder school system, the interface between upper secondary and higher education, the higher education system and socio-economic and contextual factors such as HIV and AIDS mitigate girls' transition to and effective participation in higher education in SSA.

Several interventions aimed at ameliorating the gender inequities in transition to and effective participation in higher education have been implemented in the feeder school system including re-entry policies for girls who become pregnant while still in school and implementation of SMT programs for girls. Affirmative action policies and programs have been implemented at the upper secondary and higher education interface while interventions such as policies and programs to combat sexual harassment and gender-based violence, and gender mainstreaming have been implemented in a number of higher education institutions.

However, many of the interventions are in the form of small, usually pilot projects implemented by NGOs with little enduring impact with the result that the attainment of the EFA and MDG goals of gender equity and equality in higher education in SSA remains a distant dream for most countries. Recommendations for improvement include increasing access particularly girls from marginalized communities to good quality primary and secondary schools; strengthening the teaching and learning of SMT subjects in schools with a special focus on girls; developing and effectively implementing gender in education policies; changing the masculine culture of higher education institutions; enhancing articulation of higher education curricula with the needs of the labor market; and institutionalizing the practice of collecting, analyzing and using gender disaggregated data for policy and planning purposes.

Executive Summary

Several decades of research have demonstrated that the education of women has personal, family, community and social benefits that make it an important investment for poverty reduction, national development and gender equality. Recognizing the benefits of women's education and as signatories to the 2000 Dakar Framework for Action on Education for All and the Millennium Development Goals (MDGs) also of 2000, virtually all sub-Saharan African (SSA) governments have committed themselves to working towards ensuring gender equity and equality at all levels of education by 2015. Despite these commitments, the education of women especially at the higher education level continues to pose major challenges to education systems in Africa.

The objectives for the current study were to:

- elucidate the nature and extent of the gender inequities in the transition between upper secondary and higher education in SSA;
- elucidate the nature and extent of the gender inequities in participation in higher education in SSA;
- highlight the obstacles that prevent girls and women from transiting to, and participating effectively in higher education;
- synthesize the various policy and program interventions that have been implemented in different SSA countries to enhance gender equity and equality in upper secondary and higher education;
- provide case studies of promising approaches to the education of girls and women; and
- make policy and program recommendations for national SSA governments, ministries of education and individual secondary and higher education institutions.

The data for the study were gathered through analyzing ministries of education documents, program and project documents including brochures and newsletters, monitoring and evaluation reports, and critical review of relevant research literature from across SSA.

The key finding of the study was that in SSA, the transition from upper secondary to higher education is very low for both boys and girls but especially for girls. Further, female students tend to transit comparatively more into higher education programs that lead to the so called 'female' professions such as teaching especially at the primary school level and to arts-based private university programs. On the other hand, gender disparities are particularly wide in transition to higher education SMT courses and also in the particular case of women from socio-economically marginalized groups.

A constellation of complex factors mitigate girls' transition from upper secondary to higher education. These factors emanating from the feeder school system, the interface between upper secondary and higher education, the higher education system and factors that cut across education levels which include economic, socio-cultural and contextual factors such as HIV and AIDS

Many SSA countries, have implemented interventions aimed at ameliorating the gender inequities in transition to, and effective participation in higher education. Interventions focusing on the feeder school system such as re-entry policies for girls who become pregnant while still in school and SMT programs for girls. Interventions at the upper secondary and higher education interface include affirmative action policies and programs such as lower admission cut-off points and remedial classes for females respectively. At the higher education level, interventions such as policies and programs to combat sexual harassment and gender-based violence, increasing the number and raising the levels of women academics and administrators have been implemented.

On the other hand, interventions such as girls' only scholarships, coaching programs especially in SMT, provision of boarding facilities and gender sensitization and training have been implemented at all levels of education.

However, many of the interventions are in the form of small, usually pilot projects implemented by NGOs with little enduring impact with the result that the attainment of the EFA and MDG goals of gender equity and equality in higher education in SSA remains a distant dream for most countries.

Specific recommendations for improvement include:

- Increasing access of girls generally and girls from marginalized communities to good quality and gender-responsive primary and secondary schools;
- Strengthening the teaching and learning of SMT subjects at the primary and secondary school levels with a special focus on girls;
- Developing and effectively implementing comprehensive education sector wide gender in education policies with clear guidelines on dissemination, implementation and monitoring and evaluation of the policies;
- Implementing AA policies and ensuring that such policies target the areas of greatest gender disparities such as transition of girls from marginalized communities generally and to SMT higher education courses in particular;
- Changing the masculine culture of higher education institutions such as universities through developing and implementing institution specific gender policies, increasing the number and quality of women academics (especially in SMT courses) and managers as well as combating sexual harassment and gender-based violence;
- Ensuring articulation of higher education curricula with the needs of the labor market to increase employability of female (and male) higher education graduates;
- Reviewing past and on-going interventions at all levels of education with a view to identifying and taking to scale the one(s) with the most promising impact;
- Mainstreaming gender (as in the UDSM case study) which refers to targeting the needs and interests of males and females in the design and implementation of programs and budgetary processes and provisions as well as in the day-to-day activities of the ministry of education and of schools and higher education institutions;
- Building gender capacities at all levels - the school and higher education institutions, at the MOE headquarters, and in the field offices;
- Adopting participatory approaches, partnerships and collaborations in addressing gender issues; and
- Institutionalizing the practice of collecting, analyzing and using gender disaggregated data on all aspects of education.

1. Introduction

Key among the compelling reasons that make the provision of education for women an obligation everywhere, is that education is a basic human right enshrined in the 1948 declaration of human rights which stipulates that girls, like boys, are entitled to good quality education of as high a level as they are individually capable of attaining given their nation's resources. Further, virtually all SSA governments have committed themselves to the gender in education international goals and targets articulated in the 2000 Dakar Framework for Action on Education for all and the Millennium Development Goals (MDGs) also of 2000.

In addition, several decades of research have demonstrated that there are several convincing personal, family, community and social benefits that make women's education an important investment for poverty reduction, national development and gender equality (Hyde, 1999). At the family level, education for women is associated with health and education benefits. Health benefits include reduction of women's fertility rates, lowering of infant, child and maternal mortality rates and protecting against HIV and AIDS infection. With regard to education, women's education is associated with creating intergenerational education benefits - educated women have better educated children especially girls. At the community and larger society levels, educated women are able to participate in economic and socio-political development processes. Through participation in the economic activities of their societies as paid workers or as entrepreneurs, educated women contribute to greater national productivity. Higher education, on the other hand, enables women to train in specialized fields and thus participate in the social, political and economic lives of their communities and countries as leaders in business, in the professions and in politics. Indeed higher education for women is a necessary prerequisite for gender equity and equality. Benefits that accrue to individuals from higher education have been shown to be higher than those from basic education (Psacharopoulos 1993 cited in Subbarao et al., 1994) and women need to access those benefits in the same way as men.

Given the strong rationale for the education of women generally and higher education in particular, it is imperative that SSA countries pay particular attention to the transition of girls from the upper secondary education level to the higher education level.

2. Objectives of the Study

The objectives for the current study were to:

- elucidate the nature and extent of the gender inequities in the transition between upper secondary and higher education in SSA;
- elucidate the nature and extent of the gender inequities in participation in higher education in SSA;
- highlight the obstacles that prevent girls and women from transiting to, and participating effectively in higher education;
- synthesize the various policy and program interventions that have been implemented in different SSA countries to enhance gender equity and equality in upper secondary and higher education;
- provide case studies of promising approaches to the education of girls and women; and
- make policy and program recommendations for national SSA governments, ministries of education and individual secondary and higher education institutions.

3. Gender Inequities in the Transition between Upper Secondary and Higher Education

An examination of enrollment trends at the various levels of education (primary, secondary and tertiary) in SSA indicates that the higher up the education level the lower the enrollment for both boys and girls but especially for girls, and the wider the gender gap (*See Table 3.1.*).

Data on transition from upper secondary to higher education is difficult to find. Further, much of the available literature does not split information between lower and upper secondary segments. However, the 2007 Global Monitoring Report (UNESCO 2006) has, for the first time, provided the 2004 statistical data for lower and upper secondary education segments for some countries in SSA (*See Table 3.2.*). A comparison of enrollment rates at upper secondary level and enrollment rates in tertiary education suggests that transition rates are very low for both boys and girls. In 2004, the gross enrollment ratio (GER) for upper secondary was 23 percent (males 25 percent and females 20 percent)ⁱ while the GER for tertiary education was 5 percent (males 6 percent and females 4 percent). The gender parity index (GPI) at the upper secondary level was 0.78 and 0.62 at the tertiary level suggesting wider gender disparities in favour of males at both levels but especially at the tertiary levelⁱⁱ.

Data on transition from upper secondary to the different types of higher education programs per se is not available. However, an analysis of enrollment trends in various types of higher education programs will enhance appreciation of the nature and magnitude of the gender disparities in transition from upper secondary to higher education in SSA.

3.1. Transition to teacher education programs

Women tend to transit more from upper secondary school into primary teacher education programs than into any other higher education program. This is to be expected as teaching and especially teaching at the primary school level is considered 'female' profession. Available teacher education enrollment data from Kenya and Zambia for example, indicate that women participation in higher education is high in teacher education programs for primary school teachers. In Zambia, for example, women constituted over 50 percent of the enrollment in primary teacher training colleges in 2004 and 2005 (Ministry of Education, Zambia, 2005). Women enrollment in the arts teacher education programs for secondary school teachers is also relatively high. In the academic years 2002/2003 to 2004/2005, women constituted 39.83 percent of the students enrolled in public university level secondary school teacher education programs in Kenya (Bunyi, 2006).

3.2. Transition to technical and vocational education and training (TVET) programs

Women transition from upper secondary to middle level TVET institutions suffers disadvantage. In the 2000/2001 academic year for example, women comprised only 19 percent of total enrollment in Technical Institutes in Nigeria (Federal Ministry of Education, Nigeria, 2005). Further, there are indications that women tend to transit from upper secondary into the less prestigious TVET institutions in higher proportions than into the more prestigious institutions. In Kenya, for example, between 1999 and 2004, women constituted an average of 42.7 percent of the students in the less prestigious technical training institutes compared to 32.6 percent of students in the more prestigious national polytechnics (Ministry of Education, Kenya 2005).

3.3. Transition to public university education

Female students' transition from upper secondary to public universities in SSA has remained lower than transition for male students. In Kenya, for example, in 2005, female enrollment in public universities stood at an average of 35.3 percent of total enrollment compared to a ratio of about 46 percent of secondary school leavers in 2005 (Republic of Kenya, 2006). Indeed, women enrollment has averaged 30 percent and below in

many public universities in SSA. Women constituted an average of 32.9 percent of total enrollment in the seven case study universities in the Pathways research project in East Africa (Griffin, 2007) ⁱⁱⁱ. In Nigeria, women comprised 31.2 percent of the students enrolled in 23 federal universities (Pereira, 2007) and in Rwanda, in the five years 2001- 2005, women constituted an average of only 26.8 percent of students enrolled in public universities (Huggins and Randel 2007).

3.4. Transition to private universities

Reports from Mozambique and Kenya indicate that women transit better from upper secondary into private universities in SSA. In Mozambique, gender disparities were small with women constituting 47 and 46 percent of students in private universities in 2005 and 2006 respectively (Chilundo et al., 2005). In Kenya, gender parity has been attained in most private universities and in some universities, the gender disparity favours women. Between 2000/2001 and 2004/2005 female students enrollment in chartered private universities stood at 53 percent (Republic of Kenya 2006). However, even in private universities, women are underrepresented in science and technology courses (Wesonga, Ngome, Ouma-Odera and Wawire, 2007). Among the explanations offered for the high enrolment of females in private universities are that firstly, since many of them have strong religious orientations, parents consider them to be more secure for their daughters than public universities. Secondly, because they charge considerably high fees, private universities cater for the elite who have money and therefore, unlike poor parents, do not have to make a choice between which of their children (sons or daughters) to educate. Thirdly, the majority of the private universities offer arts-based programs which attract more women (Republic of Kenya 2006).

3.5. Women and transition to science, mathematics and technology-based (SMT) higher education programs

Transition of women from upper secondary level to SMT-based programs in all types of higher education is particularly lower than transition for men. Poor transition of women into TVET programs is particularly pronounced in engineering and other technical courses. In Nigeria, for example, in the 1999/2000 session, there were zero enrollments for women in technical courses such as mechanical engineering, plumbing, fabrication and welding (Federal Ministry of Education, Nigeria, 2005). In Rwanda, in 2005, at the Institute Supérieur de Agriculture et Elevage (ISAE), only 23 percent of the students were women.

Women suffer similar disadvantage in transiting into SMT-based programs in degree awarding institutions such as universities and degree granting institutes of science and technology. In Nigeria, in 1999/2000 women students constituted only 27 percent of those in science and technology programs in the universities. At Sokoine University of Agriculture in Tanzania, for the 15 years between 1977 and 1992, women comprised only 2.8 percent of the total forestry graduates while in Rwanda, in 2005, only 20 percent of students in science and technology programs in the degree granting Kigali Institute of Technology and Management (KIST) were women (*See Table 3.3*).

Poor transition of women from upper secondary to SMT higher education courses is also evident in university level secondary school science teachers education programs. In the academic years 2002/2003 to 2004/2005, out of the 1,815 bachelor of education students who specialized in SMT subjects in Kenyan public universities, only 470 or 25.90 percent were women. These represented only 17.52 percent of the female students enrolled in education (Bunyi, 2006).

4. Gender Inequities in Participation in Higher Education

Gender disparities in higher education in SSA mostly in favour of males are found in all key education indicators – access, retention and completion, and performance.

4.1. Access

As the discussion in the foregoing section of this paper suggests, enrollment in higher education trends in SSA indicate that women have continued to be underrepresented. In 1999, the tertiary GER for females was 3 percent compared to 5 percent for males. By 2004, enrollment for both males and females had risen slightly and the GER for females was 4 percent compared to 6 percent for males (UNESCO, 2006). Further, women's educational disadvantage with regard to access especially to SMT courses in SSA straddles across the entire range of higher education programs - teacher training, TVET and university education (*See Table 4.1*).

4.2. Retention and Completion

Data on drop-out rates in higher education institutions is difficult to find. However, on analyzing drop-out rates in selected federal universities in Nigeria, Pereira (2007) reports very high drop-out rates for women (and for men in some cases) in both arts and science-based courses. In the majority of the universities Pereira studied, women registered 50 and above percent drop-out rates in medicine and in environmental studies. On the other hand, in their case study of Gulu University in war torn Northern Uganda, Okwakol et al, (2005) found that 36 percent of the female students who were admitted during 2002/03-2004/05 academic years did not enroll and that female students were more likely than male students to request for temporary withdrawal from the university. This results in female students' studies being susceptible to interruption, a situation that can lead to the female students dropping out.

4.3. Performance

There is evidence to suggest that female students' performance at university level has improved over the years. According to Sifuna and Chege (2006), in Kenya, studies undertaken in the 60s and 70s indicated that female students tended to perform less well than their male counterparts. However, more recent data reflect a marked improvement in women's performance. In both 1992 and 1994, in the University of Nairobi as well as in Kenyatta University in Kenya, a higher percentage of females than male students graduated with first and upper second class honors degrees. Similar findings are reported from Gulu University in war-torn Northern Uganda where over the period 2002/03 – 2004/05, female students performed better than male students in five of the six programs studied - Business Administration, Development Studies, Arts Education, Quantitative Economics, and Science and Education.

5. Obstacles Preventing Women from Transiting to, and Participating Effectively in Higher Education

Research on gender in education in SSA has revealed that a constellation of factors combines in complex ways to mediate girls' effective transition to and participation in higher education (Bunyi, 2004; Griffin, 2007; Kwesiga, 2002; Namuddu, 1995; Pereira, 2007). The mediating factors can be categorized into four - those emanating from the feeder school system, those that emanate from the upper secondary/higher education interface, higher education specific factors and cross cutting factors.

5.1. The feeder education system

The extremely low transition of girls from upper secondary to higher education in SSA and the subsequent low participation of girls and women in higher education is to a good extent a reflection of the gender inequities at the primary and lower secondary school levels.

5.1.1. Gender inequities in primary education

On the whole, since 2000, considerable progress in education generally, and in the education of girls in particular, has been made at the primary education level in SSA. Due to policies such as elimination of school fees, the primary education sub-sector has experienced a very fast growth of 27 percent in enrollment. The combined boys and girls GER increased from 79 percent in 1999 to 91 percent in 2004 with the percentage of girls increasing considerably from 72 to 85 percent.

However, girls continue to suffer disadvantage as regards access to primary education in SSA. By 2004, less than half (20 out of 45) SSA countries had attained gender parity at the primary school level^{iv}. Further, girls drop out of the primary education system much more than boys due to a variety of reasons. In 2003, the girls' drop-out rate for SSA as a whole was 35 percent compared to 33 percent for boys. The higher drop out rates for girls than for boys mean that fewer girls than boys remain in primary school long enough to complete the cycle and compete for transition into secondary education. In 2003, the rate of survival to the last grade of the primary school for girls was 64.8 percent compared to 67.0 percent for boys.

5.1.2. Gender inequities in Secondary education

Despite some increase in enrollment at the secondary level between 1990 and 2004, the secondary school sector continued to register very low enrollment rates for both boys and girls but particularly for girls. Of great concern with regard to the gender equity and equality goal is the increase in the gender disparity between 2000 and 2004 when the GPI moved from 0.82 to 0.78. Further, except for some southern Africa countries and the islands, where gender parity had been attained^v, none of the other SSA countries had attained gender parity at the secondary school level by 2004 (*see Table 5.1*). In addition, at the upper secondary school level, enrollment for both girls and boys but particularly for girls is extremely low at the upper secondary school level. In 2004, the GER for boys was 25 percent while the GER for girls was only 20 percent (UNESCO, 2006).

On the other hand, a close examination of country data in different SSA countries reveals that gender disparities in access to secondary education are wider among women from socio-economically disadvantaged communities than among women from the better off communities. In Kenya for example, in 2004, while the gender disparities in the socio-economically better off Central Province were 0.4 percentage points in favor of girls, Nairobi, with its large urban poor community, had a gender disparity of 11.2 percentage points in favor of boys (Ministry of Education, Kenya, 2005). Further, girls tend to drop out of secondary school more than boys and, girls with disability suffer even greater disadvantage.

5.1.3. Poor quality secondary schools for girls

The quality of the secondary school one attends is a significant determinant of how well one will learn and perform in various learning achievement assessments. Most girls in SSA are enrolled in rural and urban day often community supported secondary schools that are characterized by poor infrastructure which is often deficient in basic requirements such as science laboratories and equipment, appropriate toilets and menstruation management facilities; sexual harassment and gender-based violence which predisposes girls to pregnancy and early marriages; inadequate few female teachers to serve as role models for the girls^{vi}; and girls unfriendly, male dominated school governance and management that is often resistant to gender responsive policies such as the re-entry policy for girls who become pregnant while still in school (Griffin, 2007; Forum for African Women Educationalists [FAWE] 2004a). The consequence is that such schools are

not attractive to girls, and a good proportion of those the girls who enter drop out midstream or fail to do well in matriculation examinations whether these are the end of secondary level exams or special entrance exams for higher education institutions. Consequently, few females attain high enough marks to compete on an equal footing with their male counterparts for the limited places especially in SMT programs in colleges and universities.

5.1.4. Girls' poor access to and participation in SMT in primary and secondary education

The phenomenon of SSA secondary girls' low participation in SMT subjects with regard to access and performance was well documented in the Female Education in Mathematics and Science in Africa (FEMSA) baseline studies in the 1990s and there is no reason to believe the situation has changed drastically. Indeed, at the secondary school level, given a choice, few girls opt for SMT subjects (O'connor, 2002). In Kenya, an analysis of the Kenya Certificate of Secondary Education (KCSE) examination results over a five-year period (2000 – 2004) revealed that boys performed better than girls generally but particularly in SMT subjects - Mathematics, Biology, Physics and Chemistry (Ministry of Education, 2005). The reasons given for poor participation of girls in SMT subjects include lack of science laboratories and equipment in schools for girls, inadequate female science teachers, and gender-insensitive pedagogy.

5.1.5. The upper secondary-higher education interface

Gate keeping national examinations

Transition of students from upper secondary to higher education level is mediated by highly competitive selection end of secondary level and/or matriculation examinations, the results of which determine who will be admitted into higher education. Research reports indicate that boys tend to outperform girls in such examinations. In Tanzania, for example, in 2004, while about 45 percent of the boys who sat for the national end of Form 4 examination obtained Division 1-III only 31 percent of the girls got similar results (Abeli, Muzanila, Lyimo-Macha, and Pereka (2005).

In Zambia, in 2005, in the Grade 12 examination, girls attained a pass rate of only 50.8 percent compared to the boys' pass rate of 61.4 percent (Republic of Zambia, Ministry of Education 2006), and in Rwanda, girls underperformed boys in the upper secondary leaving examination in the three years 2000/01 to 2004/05 (Huggins & Randell, 2007).

Poor linkage between secondary and higher education

Rural and urban poor secondary school students (particularly girls) and their parents, many of who have little education, invariably have limited knowledge (based on limited experience) about the process of proceeding to higher education, and of the options available and choice of subjects in upper secondary school for maximum articulation with the subject requirements for different higher education courses. This is because of inadequate and gender insensitive career guidance and counseling services in secondary schools and the fact that universities and other higher education institutions rarely make the effort to provide the missing knowledge (Court and Sutherland, 2004).

5.2. The higher education system

Higher education-related factors that contribute to women's lower transition and participation at this level include women unfriendly institutional environments, lack of articulation between higher education curricula and the labor market, and lack of gender disaggregated data for policy and planning.

5.2.1. Women unfriendly institutional environments

The masculinized nature of educational institutions and especially higher education institutions is evident from the absence of women in senior management and academic ranks that has been reported across Africa. UNESCO (2006), for example, reports that only 17 percent of tertiary teachers were female in 2004. The implication is that a male perspective predominates in the culture and processes of these institutions with the specific needs and interests of female students and staff being relegated to the periphery. In particular, the absence of women academics generally and of senior female academics in the ranks of Professor especially in the SMT departments and faculties, means that female students and junior academics have no role-models to emulate^{vii}. Women therefore tend to either, stay away from these fields, or participate half-heartedly. Other female unfriendly aspects of the institutions include pervasive sexual harassment and gender-based violence reported from across the continent, infrastructure including the lack of appropriate sanitation facilities for females and insecure and unsafe environments, gender insensitive curricula and pedagogy, and lack of adolescent and young women friendly guidance and counseling services.

5.2.2. Lack of articulation between higher education curricula and the labor market

It has been observed that there is a mismatch between the education and skills offered in higher education and the knowledge and skills required in the world of work (Republic of Kenya 2006). The consequence is that many graduates of higher education end up unemployed, under-employed or employed in fields that they did not train for. This does not encourage girls in particular to venture into higher education. As regards SMT, many women who study the subjects in universities for example end up as secondary school science teachers with few chances for upward professional and social mobility which is commensurate with their higher education credentials. Confronted with such prospects, many female students would rather not struggle with SMT.

5.2.3. Lack of gender disaggregated data for policy and planning

Gender disaggregated data on aspects of participation in higher education such as regional, economic class of students, disciplinary ratios, retention, dropout and performance is not usually part of the data bases of higher education institutions. Further, there has been little tracking of the impact of gender interventions and initiatives (Court and Sutherland, 2004). Lack of such data makes informed policy development and planning difficult.

5.3. *Cross-cutting factors*

Several factors mediate girls' participation at all levels of education. With regard to the upper secondary and higher education levels, the critical cross-cutting factors include, economic, socio-cultural, institutional and contextual factors.

5.3.1. Economic Factors

Poverty

Poverty has negative impact on women's education with regard to all key indicators – access, retention, performance and transition. Among the poor, when families are forced to choose between taking their sons and their daughters to school, they often choose to take their sons. This is because poor families reason that investment in the education of sons will yield returns to the family since sons are expected to remain in the family throughout their lives. Investment in the education of daughters (especially in higher education), on the other hand, is seen as being of benefit only to herself, her husband and his family. However, there are reports that this thinking is changing as parents begin to see daughters as more likely to support them financially once the daughters start working (Kasente, personal interview cited in Court and Sutherland 2004). On the other hand, while several SSA countries have instituted free primary education policies, other school-related costs such as school uniforms, secondary school fees and other costs, and the costs of higher education, remain too high for poor parents. While poverty impacts directly on access, it also impacts on retention and performance.

High rates of unemployment of both male and female upper secondary and higher education graduates

Owing to depressed economies in many African countries coupled with academic programs that do not articulate with the job market needs, unemployment rates for both male and female upper secondary and higher education graduates are high. This does not encourage women students to strive to get into these institutions.

5.3.2. Socio-cultural Factors

Socio-cultural beliefs, norms, values, attitudes and practices

In virtually all societies in SSA, socio-cultural beliefs, norms, values, attitudes and practices that are inimical to the education of women are prevalent. These include: low valuing of the education of women; low expectations of women's performance generally but particularly in SMT; gender specific roles and domestic obligations that cause girls and women to be overburdened; and the high value placed on marriage for girls and motherhood which leads to pregnancy and early marriages. Collectively, these socio-cultural factors have negative impacts on the education of girls with regard to all key indicators – access, retention, performance and transition.

Lack of empowerment for girls and women

Owing to the unequal gender power relations in virtually all SSA societies, as children, girls are socialized to adopt subservient norms and values and to play subservient roles. Unfortunately, rather than empower girls and women to challenge these subservient norms and values and prepare them to participate in their societies on an equal footing with men in their adult lives, the gender insensitive institutional environments only perpetuate girls' and women's disempowerment.

5.3.3. Education system factors

Insufficient places in secondary and higher education institutions

In virtually all SSA countries, the demand for secondary and higher education far surpasses supply. Consequently, every year, thousands of students who pass their examinations fail to secure a place in lower secondary, upper secondary and higher education institutions. For example, in Kenya, the transition rate of pupils from primary to secondary remained below 50 percent between 1990 and 2003 but rose to 50.5 percent in 2004 following the implementation of the free primary education program in 2003. In 2004, the transition rate for girls (48.6 percent) was lower than the rate for boys (52.4 percent). Further, in many countries, there are fewer secondary schools for girls than for boys. In Zambia for example, to increase girls'

access to secondary education, girls are admitted as day scholars in formerly boys only boarding high schools.

In the case of university admissions, in Kenya, for example, in the eight years from 1994 to 2001, through the Joint Admissions Board (JAB) public universities admitted only an average of 30 percent of qualified applicants. In 2005, out of 68,030 students who qualified to transit to universities, only 10,000 or 14.7 percent of the students were admitted to public universities (Republic of Kenya, 2006).

When the demand for places is higher than the supply, many girls who qualify to transit into secondary and higher education usually fail to get in especially into SMT programs for which they are unable to compete successfully.

Lack of policies to address gender inequities and inequalities

Despite the apparent gender inequities and inequalities in education in SSA, many countries and institutions of higher education have not developed comprehensive policies to address the issue. Further, where ad hoc policies such as the re-entry policy to enable girls who become pregnant while still in school to re-enter the system upon delivery are articulated, they have not been followed by strict implementation. More often than not, the implementation of such policies is not monitored. Consequently, the policies have not addressed the relevant issues effectively.

5.3.4. Contextual Factors

HIV and AIDS

In SSA, research has shown that the HIV and AIDS pandemic has far reaching impacts on female education. Women, and particularly young girls, are more vulnerable to HIV infection. In some southern Africa countries for example, infection rates among 15 - 19 years-old girls, often as a result of gender-based violence, are four to seven times higher than infection rates for boys (Human Rights Watch 2003). In addition, due to strict gender division of labor, girls and women bear the brunt of HIV and AIDS care labor. Further, HIV and AIDS-illnesses-related expenses take up financial resources that would otherwise have gone to the education of girls and women.

6. Interventions to Enhance Gender Equity in Transition to, and Effective Participation in Higher Education in SSA

Many SSA countries, have implemented interventions aimed at ameliorating the gender inequities in transition to, and effective participation in higher education. In what follows, I categorize the such interventions into four – interventions in the feeder school system, interventions at the upper secondary and higher education interface, interventions at the higher education level, and interventions that cut across all education levels.

6.1. Interventions in the Feeder School System

6.1.1. Re-entry policies

To increase retention of girls who would otherwise have dropped out due to pregnancy, many countries across SSA such as Burkina Faso, Ghana, Kenya, Ethiopia, Guinea, Malawi and Zambia have implemented re-entry for policies. Reports from Zambia, which has commendably been monitoring the impact of the policy, indicate that over 70 percent of the girls who became pregnant in 2005 were readmitted to school (Republic of Zambia, Ministry of Education, 2006)

6.1.2. Empowerment programs for girls

In a number of countries in SSA, empowerment programs for girls have been instituted as a performance enhancement strategy. A good example of such programs is the Tuseme “Speak Out” girls’ empowerment program now institutionalized in several ministries of education in SSA including Kenya and Tanzania. Empowerment programmes sometimes referred to lifeskills or HIV and AIDs programs have been implemented in both primary and secondary school levels as strategies to combat HIV AIDS throughout SSA. Lifeskills programs focus on developing psycho-social lifeskills through counseling and peer counseling programmes, and integrating HIV and AIDS content knowledge and skills in the formal curriculum.

6.1.3. Making the school environment girls’ friendly

A good example of gender-responsive school environments initiatives is the FAWE’s centres of excellence initiative implemented through FAWE’s national chapters in countries such as Kenya, Rwanda, Senegal and Tanzania. The centres of excellence adopt a holistic approach to girls’ education by providing a comprehensive package of strategies for addressing girls’ education barriers. Important components of the centers are: relevant and gender responsive curriculum and pedagogy; gender sensitive teachers and school management, girls’ empowerment, teaching/learning resources; guidance and counseling; availability of bursaries; community mobilization and gender sensitization; adequate girls’ friendly physical facilities; and monitoring and evaluation systems.

6.1.4. Engendering school curricula and teaching-learning materials

Many countries have started reviewing their curricula to make them more responsive to the specific gender needs and interests of girls and boys. Some countries have also instituted review of teaching-learning materials processes to remove gender stereotyping and to generally make the materials gender sensitive.

6.1.5. Outreach programs

Working with non-government organizations (NGOs) and other stakeholders, activist academic women participate in outreach activities to promote girls’ education in schools and in the community through gender sensitization, advocacy and mobilization. In addition, tertiary institutions sometimes host and or provide conceptual and other leadership for girls’ education research and development programs. In Tanzania, Uganda and Swaziland, Female Education in Mathematics and Science in Africa (FEMSA) program was hosted in UDSM, Makerere and in the University of Swaziland respectively. Women academics provided technical support to the project in research, teacher training in gender responsive SMT teaching-learning methodologies; gender sensitization and confidence building.

Sokoine University in Tanzania, for example has been implementing an out-reach program within which female academics visit upper secondary schools and encourage girls to enroll for the forestry degree course. Reports indicate that as a result of such outreach activities, the percentage of Bachelor of Science Forestry female students increased from 3.3 per cent (1987-1992) to 10.9 percent (1993-1996) (Abeli et al., 2005).

Such outreach programs facilitate articulation between upper secondary and higher education.

6.1.5. Elimination of school fees

Elimination of school fees has proved to be an important strategy in increasing girls' access to education. In SSA, implementation of free primary education has resulted in immediate upsurge in enrollment for both boys and girls. In Kenya, for example, the free primary education program was introduced in January 2003. The GER for girls increased considerably by 14.1 percentage points from 87.5 percent in 2002 to 101.6 percent in 2004. All the same, the increase in the GER for boys was even higher – 19.1 percentage points – from 88.9 percent in 2002 to 108.0 percent in 2004^{viii}.

6.2. Interventions at the upper secondary and higher education interface

To increase female students' transition to higher education, many countries in SSA have instituted different forms AA policies. Some SSA countries have introduced bridging programs also sometimes known as pre-university programs for both male and female students. Such programs, though not specifically targeting females, contribute to increasing female students' transition from upper secondary to higher education.

6.2.1. Affirmative action policies

Lower admission cut-off points and remedial classes for females are two commonly used forms of AA at the upper secondary and higher education interface.

Lower admission cut-off points for females

With the policy objective of increasing the number of women who enroll in higher education institutions, countries such as Ghana, Kenya, Malawi, Uganda, Tanzania and Zimbabwe have implemented policies that allow female candidates who have attained the minimum required grades to enter public universities at between 1 and 1.5 points (and 2 points in the case of Zimbabwe) below males (Chivaura, 2000; Joint Admissions Board, 2002; Mlana, 2001; Musisi, 2001).

In Uganda, the lowering of cut-off points was realized through the activism efforts of the Uganda Ministry of Gender and the Department of Women's and Gender Studies at Makerere University (Kasente, 2001 cited in Bennett 2002) beginning in 1990. Subsequently the policy was endorsed by the Uganda constitution.

Lowering cut off admission points for females has increased their enrollments in these countries. Through this policy, a total of 462 females entered the six public universities in Kenya in the 2002/2003 academic year. In Ghana, female enrollments increased from 21 percent to 27 percent between 1990 and 1999, and in Uganda, female participation in Makerere University increased from 27 percent to 34 percent between 1990 and 1999.

Lowering cut off points for females has been criticized for not addressing the greatest need - increasing women's access to highly competitive SMT-based programs and increasing access for women from marginalized groups who suffer double disadvantage: as members of disadvantaged groups and as women. Ngethe et al. (2005) have reported that in Kenya, for example, over a period of six years - 1999/2000 to 2004/2005, 614 female students were admitted into the University of Nairobi through the AA policy but none of them was admitted into competitive SMT-based degree programs in the university.

Recognizing the limitation of the policy, some universities have modified the national policy to enhance female students' transition to SMT-based programs. Gulu University awards female applicants for SMT degree programs 2 points instead of the national 1.5 points in Uganda (Okwakol et al. 2005). At the Kwame Nkrumah University of Science and Technology, Ghana, in 2007/2008, all qualified female applicants were offered admission into the Bachelor of Science Mechanical programme (Effah et al. 2008).

However, while lowering cut off points AA intervention has increased women's enrollments, studies from Kenya, Uganda and Tanzania (Chege and Sifuna, 2006; Mlama, 2001; Musisi 2001) indicate that the policy has been resisted by both students and staff (male and female). Critics argue that the university or other tertiary institution is a meritocratic institution and therefore allowing women to enter at lower cut-off points than their male counterparts dilutes standards. They further argue that giving these concessions to women endorses the notion of women as the intellectually weaker gender.

Those who support the intervention, on the other hand, argue that the girls who enter the universities through this route first and foremost qualify to enter before they are considered under the scheme and that it is only due to the shortage of places that they would be otherwise locked out. One could also argue that in countries in which private universities have been opened and admission of self-sponsored students into public universities introduced, the lower cut-off point for female applicants becomes a government sponsorship issue rather than a merit issue. This is because anyone who meets the minimum university entry criteria and can afford to pay for education in private universities and in self-sponsored public university programs gains admission.

Remedial courses for female higher education candidates

To increase women's access to highly competitive SMT-related programs, in some countries; remedial courses in these subjects are offered. The University of Dar Es Salaam (UDSM) has a six-week remedial course in science and mathematics for borderline female candidates since 1997 (Luhanga and Makangara, 2007). Those who pass an examination given at the end of the course are admitted to the university. In UDSM, between 1997 and 2000, 214 female students entered highly competitive SMT related programmes such as engineering, medicine and architecture through the remedial program (Masanja 2001). The UDSM six-week remedial program has been replicated in Sokoine University of Agriculture also in Tanzania.

The six-week remedial course at UDSM was initially implemented in 1997 with a two-year Forum for African Women Educationalists' (FAWE) grant. Subsequently, the university mainstreamed the programme and no user fees are charged (Mlama 2001) and thereby therefore ensured that female students from poor families can also benefit from the program.

Although Huggins and Randell (2007) report that a remedial program for women at Kigali Institute of Science and Technology (KIST) in Rwanda became too controversial and had to be abandoned after only one intake, remedial courses as a form of AA have not attracted as much controversy as the lowering of cut-off entry points for women in other countries. Remedial programs could also be seen as being beneficial to women candidates in that they enable them fill in whatever knowledge gaps they may have in the relevant subjects.

6.2.3. Bridging programs

With liberalization of tertiary education, pre-university courses are now offered in private universities and in the self-sponsored programmes in public universities in Kenya and elsewhere in East Africa. While such courses do not specifically target women, they do provide opportunities for women to raise their qualifications and thereby transit into higher education. On the other hand, in Kenya, St. Lucie Kiriri Women's University of Science and Technology, a women's only university, offers three-month bridging

courses in mathematics, English and physics with the objective of enabling female students attain entry qualifications for competitive SMT courses in the universities and other tertiary institutions. However, owing to high fees charged, bridging programs are unlikely to benefit women from poor families who face great challenges in transiting to higher education.

6.3. Interventions at higher education

Several higher education institutions have introduced interventions to increase women participation in these institutions. In what follows, I present some of the interventions that have been introduced.

6.3.1. Combating sexual harassment and gender-based violence

Although reliable data on sexual harassment is difficult to collect, research indicates that it is commonplace and that it presents persistent obstacles to women's effective participation in higher education institutions across Africa (UNESCO 2003; Ndawi 2006; Pereira 2007). Interventions to combat sexual harassment and gender-based violence have been implemented in several institutions in South Africa - the University of Cape Town and Technikon Natal, Pietermaritzburg (Bennett, 2000)) and some universities in Kenya and Tanzania - Kenyatta University and UDSM respectively. The interventions include: articulation, popularization, implementation and monitoring of policies, support and counseling services for victims and/or perpetrators of sexual harassment, assertiveness training and esteem building programmes for women; and establishment of institutional structures for dealing with sexual harassment such as Gender Equity Units, Gender Forums, Anti-Harassment forums, Women's Advice Desks, Gender committees and Gender Task Groups (Tudge, 1997).

6.3.2. Increasing the number and raising the levels of women teachers, academics and administrators

Gender disparities in senior management and senior academic cadres of university workers are stark. In 2005 women made up only 11.1 percent of academic members of staff in the highest decision making bodies (University Council, Senate and Faculty/Institute boards) in Sokoine University in Tanzania (*see Table 6.1*). Researchers argue that absence of women from senior academic and management positions in higher education institutions denies women students and junior members of staff of role models to emulate, and leads to the perpetuation of a masculine culture that is uncomfortable for women to study and work in. Interventions in this area have included: development of gender equity in employment policies; introduction of quota system in recruitment as in the Abdou Moumouni University of Niamey in Niger (Diallo, 2003); establishment of equal employment opportunity offices as was established in the University of Cape Town (UNESCO, 2002); application of AA in the award of postgraduate scholarships to qualified and interested females as in UDSM as an intervention for increasing women in faculty and university management; and women's only research-networks in Niger (Diallo, 2003).

6.3.3. Gender Mainstreaming

Several universities in SSA have taken a holistic and comprehensive approach to addressing gender issues in the institutions. The approach is referred to as gender mainstreaming. Universities with such programs include UDSM in Tanzania and Makerere University in Uganda.

6.3.4. Women/gender studies /programmes/centers/departments

Women, gender units/centers or departments are fairly common in SSA universities. Bennett (2002) counted 18 out of the 24 universities she studied and the number is growing. Functions of the centers include:

teaching and research, and advocacy for gender equity and equality in and out of campus. SSA universities with gender centers include University of Ghana, Ibadan University in Nigeria, Eduardo Mondlane University in Mozambique, It is hard to tell whether or not gender studies units are making any impact on women's participation. However, they are producing considerable knowledge on gender issues in the institutions and elsewhere in the society all of which carefully interpreted and findings implemented in the form of interventions can increase females' enrollments.

6.3.5. Expansion of Tertiary Places

To increase transition from upper secondary to higher education generally, many SSA countries have liberalized provision of higher education through opening up of private universities, fee-paying strands within public universities and distance education programs. Another avenue of increased access is cross boarder education. While these programs do not specifically target women, they do increase transition for women. For example, in the 2003/04 and 2004/05 academic years, a total of 23,242 female students were enrolled as part time students in the then six public universities in Kenya making up 36.2 percent of students enrolled in the part time programs for which students pay full university fees. Unfortunately, access to such programs is limited to women who can pay the high fees charged in these institutions.

6.4. *Interventions That Cut Across the Education Levels*

In many cases, similar interventions to increase female participation are implemented at the various levels of education. Key such interventions are presented in what follows.

6.4.1. Girls only scholarships and other forms of financial assistance

At the secondary school level, scholarships and other forms of financial assistance are a common intervention used to increase access and enhance retention of girls in secondary schools. The FAWE bursary program implemented in countries with FAWE national chapters provides bursaries to bright primary and secondary school girls from poor families. Between 1999 and 2002, a total of 3, 982 girls at secondary and primary level benefited from the FAWE bursary programme (FAWE 2002). On the other hand, affirmative action in the allocation of government funded bursary programs is in place in like Kenya and Zambia.

At the higher education level, there are various women only scholarship programs from government and non-government sources. In Kenya, for example, concerned about the wide gender disparity in engineering disciplines at various Public Technical Training Institutions, the Directorate of Industrial Training Centers instituted a women only sponsorship program in 2006. The program offers training opportunities at Craft Level in mechanical, automotive, electrical/electronics and building engineering for 25 academically qualified females. Orphans and those living in special circumstances are given special consideration.

Examples of non-government sponsorship schemes include the Carnegie Corporation's full-cost scholarship program for girls enrolled in undergraduate courses in South Africa, Ghana and Uganda (Court and Sutherland, 2004). Individual citizens in Africa are also starting sponsorship schemes in support of female students. In Kenya, the University of Nairobi's Chancellor has recently used his personal money and started the J. B. Wanjui Fund which is providing financial assistance to brilliant female students enrolled in SMT programmes in public and private universities.

6.4.2. Coaching programs

Coaching programs for women students especially in SMT programs have been implemented at both secondary and higher education levels. Secondary school girls' science programs such as FEMSA and the FAWE Science and Mathematics and Technology Program have included a coaching component in the

program design with the aim of providing extra tuition to girls so that they can perform well in these subjects. The Ghana Strategies for Advancing Girls Education (SAGE) project started in 2001 and implemented in 70 communities of Ghana's 100 districts is a good example of such interventions.

On the other hand, in Abdou Moumouni University of Niamey in Niger, a 'catch-up' classes project to help girls especially those who could have been admitted into the University with lower marks than boys improve on their performance and thus enhance their performance and retention in the university has been implemented (Diallo 2003).

6.4.3. Provision of boarding facilities

In both secondary and higher education levels, boarding facilities for female students are considered an important strategy for improving performance. This is because boarding facilities enable female students to escape from domestic chores and responsibilities which take up much of their time and energy. Removed from domestic chores and responsibilities, female students are able to focus on their academic work and thus perform better and transit to higher education.

6.4.4. Women only institutions

In SSA, women only institutions are often established with the aim of enhancing women's performance. On the other hand, among some very conservative communities, girls/women only institutions may be the only channel through which girls/women can access education.

Single Sex Girls' Secondary Schools

There is evidence that girls' performance particularly in SMT is enhanced by being in single sex boarding schools. Pereira (2007) reports that the majority of girls in SMT-based degree programs in Nigerian universities attended all girls' secondary schools. Similar research findings have been reported in Kenya. Ngethe et al. (2005) reported that a girls' only school in Nairobi had been ranked first in the country four times in nine years with the majority of the girls from the school (52.56 per cent in 2000, 51.35 per cent in 2001, 56.63 per cent in 2002 and 56.1 per cent in 2003) being admitted into public universities enrolling for courses such as engineering/architecture, medicine and pharmacy (Ngethe et al., 2005).

Women Only Universities

SSA countries with women's only universities include Ghana, Nigeria, Zimbabwe and Kenya. Started in 2003, Kiriri Women's University of Science and Technology is an exclusively science university with the aim of increasing access to science and technology university level programs for women

However, women's only universities are controversial. In Kenya, there are those who think that separating women from men throughout their education is unwise as it creates an artificial environment and denies both the opportunity to interact across the genders. On weighing the different views on women's only universities, Court and Sutherland (2004) observed that single sex universities were given conditional acceptance since the general view was that women's only universities made sense where they offered something special and extra and that they are a means of speedy redress of gender inequities especially in relation to training for non-traditional areas and the modern labor market.

6.4.5. Gender sensitization

Increasing female participation in education involves trying to change peoples' entrenched beliefs about and attitudes towards women through education and re-education to raise awareness about the incorrectness and the negative impacts of the beliefs and attitudes on women in particular and on society in general. This is

done through gender sensitization seminars, conferences and workshops, which have been organized in most universities (Mlama, 2001) and in many schools and communities. As Mlama has noted, although the outcomes of these activities are difficult to measure, many people in education and in society are now aware about gender issues and even support gender equity in public though they may not act so in their private lives.

6.4.6. Gender capacity building

Gender is a fairly new field of study and work in SSA. There is therefore a serious shortage of people with the necessary knowledge and skills to develop, implement, and monitor and evaluate gender policies and programmes. Through NGOs working in the area of gender in education such as FAWE and others, gender training activities for the various actors in education including policy makers, curriculum developers, teachers, and education managers and governors have been conducted in many SSA countries.

6.4.6. Gender in education policies

Many SSA countries, have engaged in gender policy dialogue. The result has been the articulation of gender policies on an ad hoc basis. However, more recently, MOEs have started to address the gender in education policy environment more comprehensively and strategically. An example of such efforts is Kenya's MOE Gender and Education Policy completed 2007 (Republic of Kenya, 2007). The Gender and Education Policy has stipulated gender policies for the entire education sector in Kenya.

6.4.7. Establishment of institutional structures

In many SSA countries, institutional structures have been established at various levels – national, regional and sub-regional, and institutional - to perform various roles related to the education of women. At national level, this has involved the setting up of gender desks or gender focal points at the ministry of education headquarters in most SSA countries. At regional and sub-regional levels, specific officers have had gender added on to their assignments. On the other hand, some universities such as UDSM have set up gender committees to promote the gender equity agenda in the universities. In yet other universities, institutional structures such as Anti-Harassment forums and Women's Advice Desks have been set up to deal with issues of sexual harassment (Tudge, 1997).

Based on this writer's observation in Kenya and in Zambia, it is unlikely that institutional structures such as gender desks at MOE headquarters have had much impact. Other than a title, relevant officers have not been given the necessary resources – gender capacity, and material and financial support – to do the job.

7. Case Studies of Promising Approaches in Women's Education

7.1. The FAWE Bursary Scheme in Ethiopia

Policy objective: to increase girls' access to primary and secondary education

The objective of the FAWE bursary scheme is to enable bright girls from poor families access and complete secondary education. Implemented by the FAWE Ethiopia National Chapter, the first phase (1999-2004) of the FAWE bursary scheme was launched in 1999 with funding from. The second phase started in 2005 with funding from the Academy for Educational Development (AED). The bursary scheme was extended to tertiary level students in 2002/2003 with financial support from the Women's Affairs Sub-Sector in the Office of the Prime Minister.

The bursary scheme has adopted a participatory and democratic process of selecting awardees. Each of the schools with girls receiving bursaries sets up a technical committee made up of teachers, parents, students and Women Affairs representatives. The committee ensures that the selection criteria for the bursaries which are based on academic qualification and need are followed strictly.

In addition to school fees, the awardees receive money to cater for school-related expenses such as school uniform, textbooks and exercise books as well as money to cater for personal expenses such as housing, sanitary towels and daily subsistence.

The FAWE-Ethiopia bursary program adopts a multifaceted approach to supporting girls' education. In addition to supporting individual students, the bursary program implements girls' education-related activities in the schools and communities with girls receiving bursaries. The activities include (1) provision of teaching-learning materials on topics such as development and human rights from a gender perspective; (2) provision of information, education and communication (IEC) packages on topical subjects such as culture and gender awareness, adolescents reproductive health, HIV and AIDS, and harmful practices such as early marriage, rape, abduction, and female genital mutilation; and (3) yearly community sensitization workshops in each affiliated school aimed at promoting the education of girls and women.

Monitoring reports indicate that in the first phase of the scheme – 1999-2004, 1, 380 from across Ethiopia received bursaries. By the beginning of 2006, about 70 percent of the bursary recipients had successfully completed secondary education with some gaining admission in the Faculty of Science in the University of Addis Ababa while others joined various universities and colleges. Through the tertiary strand of the FAWE-Ethiopia bursary program, 160 female students in the Faculty of Science in the University of Addis Abba and 144 female students in the Dialla College of Debu University were awarded bursaries.

Important lessons from the program underscore the importance of clear criteria and guidelines for accountability and transparency, stakeholder participation and partnerships and multi-prong approach in supporting the education of girls.

Ref: *FAWE (2002), and (2006)*

7.2. Re-entry Policy for School-girl Mothers in Zambia

Policy Objective – To reduce drop-outs, enhance completion and reduce gender disparities in education

Zambia introduced a re-entry policy for girls who become pregnant while still in school in September 1997 through an announcement by the then Minister of Education. The Ministry of Education (MOE) subsequently formalized the ministerial announcement in December 1997 through a circular to all provincial and district education officers, and heads of schools directing them to implement the policy without delay.

To facilitate the implementation of the policy, in partnership with the Forum For African Women Educationalists, Zambia Chapter (FAWEZA), the MOE developed detailed guidelines with clear instructions on how schools can detect pregnancies, the steps that girls should take when a pregnancy has been detected; the documents that the girl's school should receive when she goes on leave of absence; the documents that should be maintained by the school on the pregnant girls who are on leave; the steps to be taken if a fellow pupil, a teacher or an outsider is responsible for the pregnancy; the length of time for re-entry after delivery; the steps to be followed in cases of school transfers; the number of times a girl should be allowed to re-enter school; ways to track girls who become pregnant; and ways to improve the school environment and prevent teenage pregnancies (Ministry of Education [Zambia], 2004).

Initially, the girls' re-entry policy faced serious challenges including lack of legality and resistance on moral grounds by the church, the Zambia Union of Teachers, parents, individual teachers, boys and even girls themselves. However, by 2004, the opposition had subsided and the policy institutionalized through inclusion in the Ministry of Education policy framework of 2000.

FAWEZA has put in place two other initiatives to support the implementation of the re-entry policy: providing some financial support to needy re-entry girls to cover some of their needs and established the Student Alliance for Female Education (SAFE) clubs in schools for girls and boys. The SAFE clubs seek to: help girls avoid getting pregnant, raise awareness about the re-entry policy and remove stigma against re-entry girls. Life skills activities in the SAFE clubs focus on developing skills such as: confidence and assertiveness; decision making and communication skills. Through a SAFE clubs mentorship program, through FAWEZA trains club leaders on reproductive health and mentoring so that they can mentor other girls in the school.

The re-entry policy in Zambia is closely monitored by the Ministry of Education. The data show that a total of 2,845 (76.1 percent) of the 3,738 high school girls who became pregnant between 2002 and 2005 were re-admitted to school (Republic of Zambia, Ministry of Education, 2006).

Lessons learned include underscore the importance of political will in girls' education policy formulation and implementation - rather than capitulate when the policy faced strong opposition, the government maintained that expelling girls would make gender equality in education impossible and vigorously pursued the implementation of the policy; wide dissemination of clear policy guidelines; partnership between MOE and civil society and the community; and MOE's regular monitoring of policy implementation of the policy through data collection and reporting.

Ref: FAWE (2004a, 2005a); Republic of Zambia Ministry of Education (2004)

7.3. Tuseme – “Speak Out” - Girls' Empowerment Program in Tanzania

Policy option – To improve girls' retention; performance and education outcomes

The Tuseme girls' empowerment program in Tanzania was initiated in seven secondary schools by the Department of Fine and Performing Arts of the University of Dar es Salaam (UDSM) in 1996 in collaboration with the Ministry of Education (MOE) as a response to the problem of poor academic performance of girls in secondary schools. The MOE officially adopted Tuseme as one of its many projects in 1999. The implementation of Tuseme however remained a partnership between MOE and UDSM which was given the implementation and co-ordination roles.

In consultation with the MOE, UDSM identifies and selects Tuseme schools, trains Tuseme facilitators, and two teachers from the selected school to oversee the implementation of Tuseme in the school.

At the school level, the Tuseme process is implemented through Tuseme Clubs for girls and boys. School level Tuseme processes include: (1) sensitization workshops involving the whole school and surrounding community facilitated through the theatre for development approach. (2) Establishment of students led girls support clubs – Tuseme clubs - which monitor empowerment activities at the schools and act as mobilizing agents and which girls develop psychosocial lifeskills.

An annual national Tuseme Festival brings together representatives from all the schools (students and teachers) that have Tuseme activities. Festival activities include theatre performances, workshops, exhibitions of gender materials, tuition sessions; experience sharing; interaction with women role models, and awards.

Tuseme has had positive impacts on the education of girls as regards retention, performance, and acquisition of psychosocial life skills. In Msalato Girls Secondary school pass rate at the end of secondary school examination has improved tremendously. In 1994, only 25 percent of the candidates obtained Division I-III. In 2003, 90 percent of the girls managed to get Division I-III. Tuseme has had a positive impact on reducing pregnancies. In Songea Girls Secondary School pregnancies dropped from 15 in 1999 before the introduction of Tuseme to 8 cases in 2000, the year in which Tuseme was introduced in the school, and only 3 cases in 2001. Tuseme monitoring reports also indicate that qualitative gains have also been realized as evidenced by Tuseme girls' ability to analyze issues critically and to speak out and claim their rights when they sense threat to the rights.

Tuseme in Tanzania is jointly funded by the government, (SIDA), UDSM, FAWE and the private sector. The unit cost of implementing Tuseme in one school is calculated to be about USD 40.30. This is considered to be low considering the benefits accrued.

Lessons learned from Tuseme in Tanzania have underscored the importance of: utilizing the intellectual and creative resources in universities; stakeholder participation and partnerships girls' empowerment as a strategy for improving girls' retention and performance.

Ref: FAWE (2004b, 2005b)

7.4. Female education in Mathematics and Science in Africa (FEMSA) and FAWE Science, Mathematics and Technology (SMT) Program

Policy Objective – to improve girls' access and performance in SMT

FEMSA

The two-year FEMSA pilot project was implemented between 1996 and 1997. The project goal was to improve the participation of girls in SMT subjects in primary and secondary schools in Africa. The pilot phase of the project comprised of baseline studies on girls' access to the study of SMT subjects, and the constraints and difficulties they face in learning the subjects in Cameroon, Ghana, Tanzania and Uganda. FEMSA was subsequently implemented in 11 SSA countries.

The FEMSA project design facilitated university-secondary schools collaboration in support of girls' learning of SMT subjects. FEMSA was hosted in UDSM, Makerere and in the University of Swaziland respectively. Female academics provided technical support in research, teacher training in gender responsive SMT teaching-learning methodologies, gender sensitization and confidence building activities.

School-level FEMSA interventions included: sensitization and awareness building, establishment of FEMSA science clubs for girls and boys; science teachers' professional development; remedial classes for girls, and community mobilization to support girls' learning of SMT subjects.

The FEMSA project ended in 2001. Although no hard data was collected on FEMSA's impact on girls' learning of SMT subjects, anecdotal reports indicated that there was an improvement girls' participation and performance in SMT in the schools in which FEMSA was being implemented. It was further reported that an attitude change had been noted in the girls in the FEMSA schools towards the learning of SMT.

THE FAWE SCIENCE, MATHEMATICS AND TECHNOLOGY (SMT) PROGRAM

The FAWE SMT program is an offshoot of FEMSA. A 2003 external evaluation of FEMSA revealed that girls' science camps had become a popular and effective strategy for improvement of access and participation in SMT subjects for girls. FAWE Regional Office provided financial resources to the 11 FAWE chapters that had been involved in implementing FEMSA to continue implementing girls' SMT activities. The program was subsequently expanded and is now implemented in all the 33 countries with FAWE national chapters.

The core activities of the FAWE SMT program are: (1) teacher in-service training in gender-responsive pedagogy, (2) making gender responsive teaching-learning resources available, (3) girls' science camps, and (4) setting up data bases.

Lessons learned from the two programs indicate that given the appropriate support, SSA girls can learn SMT and underscore the importance of girls' involvement in SMT initiatives and partnerships in girls' initiatives.

Ref: FAWE (n.d.), O'connor (2002); Personal Interview with the SMT Programme Officer at FAWE Secretariat, FAWE House, Nairobi on October 22.

7.5. The FAWE Centers of Excellence – The Case of Diourbel Junior Secondary School, Senegal

Policy objective – to increase access, retention and performance particularly of girls in disadvantaged communities

The objective of a FAWE Center of Excellence is to increase access, retention and performance for disadvantaged girls. The FAWE Center of Excellence model is based on providing a comprehensive package of strategies for addressing the barriers that cause girls to: drop out of school prematurely, perform poorly in selection examinations, fail to transit to secondary and higher education, and endure a negative experience in school.

Diourbel was chosen to become a FAWE pilot center of excellence in 2001. A day co-education school located in a peri-urban area in central Senegal, Diourbel had all the characteristics that militate against the education of girls.

The first step in the transformation of Dioubel was a two-day Vision Workshop for all stakeholders in the school to create awareness among the participants of their personal attitudes towards girls' education, and gender issues in education, and the participants' role in contributing to gender-related education problems. The workshop participants proposed solutions that could be implemented to improve the education of girls at the school within the framework of a center of excellence model.

Subsequent key activities to transform the learning environment at Dioubel have focused on infrastructure improvement, engendering curriculum and pedagogy, provision of teaching and learning resources, girls' empowerment, community mobilization and gender sensitization, financial support for needy girls, and capacity building for teachers and school management.

Indications of positive impact include: increased enrollment from 615 in 2001 to more than 900 in 2003; retention of 78 girls in 2003 through the bursary initiative; and improved performance - In 2001, selected to become a centre of excellence, from only 56 percent of the boys and 47 percent of the girls passing the end of secondary level examination in 2001 before the intervention to 66 percent boys and 69 percent girls passing in 2006 following implementation of the initiative (FAWE 2004a).

In 2003, based on 900 students in 2003, the unit cost in Dioubel was USD 6.37^{ix}. Considering the positive impact realized in Dioubel, this is still a small price to pay.

Lessons learned from the transformation of Dioubel into a center of excellence underscore the importance of a comprehensive approach to addressing girls education problems; partnerships and collaboration; cost is manageable; and regular monitoring and documentation of impact among others.

Ref: FAWE (2004c)

7.6. Gender Mainstreaming Programme at the University of Dar Es Salaam (UDSM)

Policy goal – to attain gender equity and equality at UDSM

Gender mainstreaming is a holistic approach to addressing gender issues so as to ensure that the learning and working environment is sensitive to the needs and interests of both genders. Gender mainstreaming at UDSM has been a core process in the strategic structural transformation of the university.

The milestones in gender mainstreaming at UDSM include: setting up of the Gender Dimensions Task Force (GDTF) in 1997 to examine the gender concerns at the university; setting up of a Gender Dimensions Programme Committee (GDPC) in 1998 to oversee and facilitate the implementation of gender mainstreaming in UDSM; a comprehensive gender analysis of UDSM. Student-oriented gender mainstreaming initiatives have included: AA – awarding one bonus point to qualified female applicants; pre-entry program for female candidates for SMT-based programs; and a special pre-entry program for female engineering and statistics applicants. Staff-oriented initiatives include: a scholarship program for female post-graduate students and staff to increase the pool for women academics; and networking and linkages

Key Achievements include: increase in women students' enrollment and retention - from 7 percent in 2003/04 to 27 percent in 2007/08 in engineering; increase in women holding senior positions; development and wide dissemination of the UDSM Gender Policy in 2006; adoption of an anti-sexual harassment policy; establishment of a Gender Center to provide planning, monitoring and evaluation and capacity gender building and research; availability of sex disaggregated data for teaching, policy and planning; a gender sensitized community; establishment of the Gender Club for students launched in 2004 and integration of gender studies in the curricula of different academic programs.

The UDSM community is part of the larger Tanzania society that continues to live by socio-cultural norms, values and beliefs that are discordant with gender values espoused in gender mainstreaming. Implementing

gender mainstreaming therefore does not always encounter enthusiasm. The challenges UDSM has faced and continues to face include: resistance to affirmative action initiatives particularly the lowering of entry points for female students; selling gender mainstreaming to MOE since gender inequities occurring through MOE processes affect gender mainstreaming at UDSM; ensuring gender accountability across all levels of the university. Limited gender analysis and other gender related capacities in the university.

The lessons learned underscore the importance of: continuous gender sensitization is necessary if gender mainstreaming is to succeed; Developing a shared ownership of a gender equitable institution is a challenging but necessary process of gender mainstreaming; and top management's commitment to gender mainstreaming.

Ref: Luhanga and Mukangara (2007); Masanja (2001)

8. Conclusion

From the foregoing discussion, it is clear that, in SSA, transition from upper secondary to higher education is unacceptably low for both males and females but especially for females generally and females from marginalized communities in particular as well as with regard to females' transition to SMT higher education courses. The extremely low transition of females to and participation in higher education is mitigated by a constellation of complex factors emanating from the school system, the interface between upper secondary and higher education, and the higher education system itself as well as socio-economic and contextual factors. These factors constitute major challenges to SSA governments and higher education institutions as they strive to achieve the EFA and MDG goals of gender equity and equality by 2015. A variety of interventions to improve the education of girls generally and girls' transition to and effective participation in higher education in particular have been implemented in virtually all SSA countries. However, many of the interventions (as is clear from the promising approaches documented in this paper) are in the form of small, usually pilot projects implemented by NGOs. Consequently little enduring impact is achieved with the result that the attainment of the EFA and MDG goals of gender equity and equality in higher education in SSA remains a distant dream for most countries.

9. Recommendations

Increasing transition of females to and effective participation in higher education will call for action in primary and secondary education sub-sectors which are responsible for preparing students well enough for participation in higher education. Action will also need to be taken at the upper secondary and higher education interface and within higher education itself. The following actions could serve as entry points:

- Increasing access of girls generally and girls from marginalized communities to good quality and gender-responsive primary and secondary schools;
- Strengthening the teaching and learning of SMT subjects at the primary and secondary school levels with a special focus on girls;
- Developing and effectively implementing comprehensive education sector wide gender in education policies with clear guidelines on dissemination, implementation and monitoring and evaluation of the policies;
- Implementing AA policies and ensuring that such policies target the areas of greatest gender disparities such as transition of girls from marginalized communities generally and to SMT higher education courses in particular;
- Changing the masculine culture of higher education institutions such as universities through developing and implementing institution specific gender policies, increasing the number and quality of women academics (especially in SMT courses) and managers as well as combating sexual harassment and gender-based violence;
- Ensuring articulation of higher education curricula with the needs of the labor market to increase employability of female (and male) higher education graduates;
- Reviewing past and on-going interventions at all levels of education with a view to identifying and taking to scale the one(s) with the most promising impact;
- Mainstreaming gender (as in the UDSM case study) which refers to targeting the needs and interests of males and females in the design and implementation of programs and budgetary processes and provisions as well as in the day-to-day activities of the ministry of education and of schools and higher education institutions;
- Building gender capacities at all levels - the school and higher education institutions, at the MOE headquarters, and in the field offices;
- Adopting participatory approaches, partnerships and collaborations in addressing gender issues; and
- Institutionalizing the practice of collecting, analyzing and using gender disaggregated data on all aspects of education.

ⁱ Unless otherwise stated, statistics in this paper are based on information in the EFA monitoring reports for 2003/4 and 2007 (UNESCO 2003, 2006).

ⁱⁱ The GPI measures the ratio of female-to-male value of a given indicator - the closer to 1 the GPI, the smaller the gender disparity. GPI values of 1 and above indicate gender disparities in favor of girls.

ⁱⁱⁱ The project was funded by the Ford Foundation and implemented by The Association for the Advancement of Higher Education and Development (AHEAD) in Kampala, Uganda. The case study universities were: Makerere and Gulu universities in Uganda; Nairobi and Moi universities in Kenya; and University of Dar es Salaam, Sokoine and Hubert Kairuki Memorial universities in Tanzania.

^{iv} 2005 was the EFA and the MDGs target date for gender equity at the primary school level.

^v In some of these countries, the gender disparity was to the disadvantage of boys.

^{vi} Only 22 percent of secondary school teachers in SSA were female in 2004 (UNESCO 2006).

^{vii} For example, only 3 (6.1 per cent) and 4 (9.7 percent) associate and full professors respectively, were women in Sokoine University of Agriculture in Tanzania 2005 (Abeli et al. 2005).

^{viii} Some countries have started implementing free secondary education policies. For example, Kenya has introduced free tuition in secondary schools from January this year (2008).

^{ix} The unit cost was calculated on the cost of the infrastructure and the cost of the gender responsiveness package

Appendices

Statistical Tables

Table 3.1 Trends in Gross Enrollment Ratios (%) in Different Education Levels in SSA

	Total	Male	1990 Female
Primary	74.1	80.9	67.3
Lower Secondary	---		----
Upper Secondary	----	----	----
Tertiary	1.6	2.4	0.9

Source: UNESCO 2003 & 2006

Table 3.2 Gross Enrollment Ratios (%) for Lower and Upper Secondary Education in Selected Countries in sub-Saharan Africa (2004)

Country	Lower Secondary				Upper Secondary			
	Total	Male	Female	GPI	Total	Male	Female	GPI
Benin	34	44	24	0.54	14	20	9	0.43
Botswana	87	84	89	1.07	58	57	58	1.02
Burundi	16	18	14	0.78	7	8	6	0.67
Comoros	41	47	35	0.75	27	30	24	0.78
Congo	50	53	47	0.88	21	25	17	0.69
Equatorial Guinea	41	51	31	0.60	13	17	8	0.45
Eritrea	61	75	46	0.61	19	26	13	0.49
Ethiopia	44	53	36	0.68	16	20	11	0.58
Gambia	59	63	56	0.90	33	39	28	0.71
Ghana	64	68	59	0.88	23	25	20	0.78
Guinea	32	43	21	0.50	16	22	9	0.42
Kenya	87	89	86	0.97	29	30	27	0.89
Lesotho	45	40	51	1.29	23	21	25	1.21
Malawi	41	44	37	0.83	16	18	13	0.73
Mali	30	37	23	0.62	14	18	10	0.57
Mauritius	99	98	100	1.02	80	81	78	0.96
Mozambique	16	19	13	0.67	3	3	3	1.00
Namibia	74	68	80	1.17	30	30	30	1.00
Niger	11	13	9	0.68	3	4	2	0.58
Nigeria	37	41	33	0.82	32	35	28	0.81
Rwanda	18	19	17	0.89	10	11	10	0.89
Sao Tome and Principe	63	59	66	1.11	26	26	25	0.96
Senegal	25	29	21	0.75	11	13	9	0.64
South Africa	95	92	97	1.06	88	84	91	1.08
Swaziland	50	49	51	1.04	29	30	28	0.92
Togo	54	69	38	0.55	17	27	8	0.29
Uganda	19	21	17	0.82	9	11	7	0.66
Zambia	40	43	36	0.84	16	18	13	0.71
Zimbabwe	55	56	53	0.95	27	29	25	0.86
SSA	36	41	32	0.78	23	25	20	0.78

Source: UNESCO (2006)

* GPI – The Gender Parity Index measures the ratio of female-to-male value of a given indicator. Values below 1 indicate a gender disparity in favour of boys while those above 1 indicate a disparity in favour of girls.

Table 3.3: Academic Staff at Sokoine University, Tanzania by Sex and Grade – June 2005

Designation	Male	Female	% Female
Professor	37	4	9.7
Associate Professor	46	3	6.0
Senior Lecturer	54	12	18
Lecturer	46	7	13
Assistant Lecturer/Research Fellows	39	13	25
Tutorial Assistants	17	5	19
TOTAL	243	43	15

Source: Abeli et al. (2005).

Table 4.1 Percentage of Women Enrolled in Selected Tertiary Level Fields of Study in Selected SSA Countries in 2000

COUNTRY	Education	Humanities and Arts	Social Sciences, Business and Law	Science	Engineering, Manufacturing and Construction	Agriculture	Health and Welfare
Angola	42.7	.....	37.3	37.6	20.5	....	57.5
Botswana	55.3	57.7	47.4	26.4	22.2	15.1	63.5
Central African Republic	6.6	15.4	14.5	13.2	2.8	11.8	19.0
Congo	15.7	12.8	9.1	13.7	...	18.6	23.6
Eritrea	8.8	16.4	22.8	9.0	4.9	11.0	11.5
Ethiopia	18.4	22.8	30.9	16.5	8.9	13.1	21.2
Ghana	30.7	37.6	28.4	29.3	10.5	15.9	29.6
Lesotho	72.8	58.1	52.8	35.2	.....	52.6	.....
Madagascar	42.5	57.1	48.0	32.2	21.6	36.8	50.8
Mauritius	49.8	65.6	48.3	48.6	184	48.8	....
Sierra Leone	32.7	31.0	21.4	27.4	25.0	19.6	28.5
Swaziland	51.2	59.5	46.3	40.4	5.8	29.5	99.2

Source: UNESCO (2006)

Table 5.1. Trends in Gross Enrollment Ratios (%) for Secondary Education in Selected Countries in SSA

Country	1990				2000				2004			
	Total	Male	Female	GPI	Total	Male	Female	GPI	Total	Male	Female	GPI
Benin	11.7	16.6	6.6	0.41	21.8	30.1	13.5	0.45	26	34	18	0.52
Botswana	42.9	40.8	5.0	1.10	79.1	76.8	81.5	1.06	75	73	77	1.05
Burkina Faso	6.6	8.8	4.6	0.52	10.2	12.4	8.0	0.64	12	14	10	0.68
Burundi	5.4	6.9	4.0	0.58	10.3	11.6	9.0	0.77	12	14	10	0.75
Chad	7.0	11.8	2.3	0.20	11.5	17.9	5.1	0.28	15	23	7	0.32
Comoros	17.6	21.2	13.8	0.65	20.6	22.6	18.5	0.82	27	30	24	0.78
Congo	52.2	61.5	43.3	0.70	41.9	45.8	38.1	0.83	21	25	17	0.69
Ethiopia	14.0	16.0	12.0	0.75	18.0	21.7	14.3	0.66	31	37	25	0.65
Ghana	35.0	42.9	27.1	0.63	36.2	39.9	32.5	0.81	44	47	40	0.85
Kenya	23.8	27.4	20.2	0.74	30.6	32.1	29.2	0.91	48	50	48	0.93
Lesotho	26.4	21.2	31.5	1.49	32.8	29.8	35.8	1.20	36	32	41	1.27
Malawi	7.5	10.3	4.8	0.46	35.7	40.5	30.8	0.76	29	32	26	0.81
Mauritius	52.9	52.7	53.1	1.01	77.1	79.4	74.7	0.94	88	89	88	0.99
Mozambique	7.5	9.5	5.5	0.57	11.9	14.5	9.3	0.64	11	13	9	0.70
Namibia	40.5	35.9	45.1	1.26	61.7	58.0	65.5	1.13	58	54	62	1.14
Niger	6.4	8.9	3.8	0.43	6.4	7.7	5.1	0.66	8	9	6	0.67
Rwanda	8.0	9.2	6.9	0.76	14.1	14.2	14.0	0.98	14	15	14	0.89
Senegal	16.2	21.2	11.2	0.53	17.8	21.4	14.2	0.66	19	22	16	0.72
South Africa	66.8	61.9	71.8	1.16	87.3	83.4	91.2	1.09	90	87	94	1.07
Swaziland	45.7	46.5	44.9	0.97	59.9	60.0	59.8	1.00	29	26	32	1.24
Togo	22.7	33.9	11.5	0.34	39.1	53.8	24.4	0.45	39	52	26	0.50
Uganda	12.5	15.9	9.0	0.56	15.2	18.5	11.9	0.64	13	14	12	0.87
Zimbabwe	48.2	51.5	45.0	0.87	44.5	47.3	41.6	0.88	36	38	35	0.91
SSA	17.5	21.2	13.8	0.65	26.5	29.1	23.8	0.82	30	34	26	0.78

Source: UNESCO 2003 & 2006

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