

SCIENTIFIC AND TECHNOLOGICAL EDUCATION OF GIRLS IN SUB-SAHARAN AFRICA, AN IMPERATIVE FOR DEVELOPMENT.

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INTRODUCTION

1 – Importance of Education in Development

Nobody ignores evidence today to link education with numerous benefits, which joint the view that education is the foundation of development.

In her Saint James Coleman lecture in 1999 entitled “Accelerating the Education of Girls and Women in Sub-Saharan Africa: A Development Imperative”, Dr. Eddah Gachukia, founder of Forum for African Women Educationists (FAWE), underlined that education is the foundation of development, and education of girls and women is a prerequisite for Africa’s development.

It seems obvious today that education brings numerous benefits.

The World Conference on Education For All (EFA), held in Jomtien, Thailand, in 1990, underlined the role of education for ensuring a safer, healthier, more environmentally sound world. The conference also identified education as a crucial contributor to social, economic and cultural progress, tolerance, and capacity for cooperation among other benefits. We can report many studies linking basic education with the fostering of agricultural innovation, improving resource management and utilization, promoting the use of new technologies, and enhancing the capabilities of people to harness the knowledge they need for their own and their countries’ development.

The Delor’s report (1996) identified the four pillars of learning:

Learning to know,

Learning to do,

Learning to live together, to live with others, and

Learning to be.

Education, through its effects on productivity and other aspects of life such as wealth, health, population growth ..., influences and determines the well-being of the individual, the nation, and indeed the world.

At the independences, African countries aimed their development in large education access: only 25% of children were enrolled in primary school in Sub-Saharan Africa. By 1980, more than 60% were enrolled. Recently, the enrolment of girls has increased, but not sufficiently and there is significant variation between countries, and regions within each country. According to “the state of the world’s children report (UNICEF, 1998)”, nearly a billion people will reach the 21st century unable to read a book, or sign their names; much less operate a computer or understand a simple application form.

Over 190 million children of school-age are growing without access to basic education, 81 million of them are girls. Of the 100 million children who drop out primary school before completing the term of four years, two thirds are girls. The gender gap in school age children and adult literacy is wider in the poorest countries, the majority of which are in Sub-Saharan Africa.

Africa has a very large diversity of nations, and every State is particular in its vision of conducting education and thus, its development. But some characteristics appear to be common and can be united in order to enhance cooperation and collaboration, in overcoming some of the problems that continue to hinder Africa’s development. Armed conflicts, civil strife, high rates of population growth, stagnant economy, pandemics ... have implication with development.

In the last decade of the 20th century, many authors and numerous reports underlined the role of education in development, and the alarming situation of analphabetic populations in Sub-Saharan Africa:

In 1999, the situation was not very optimistic, so, many countries met in Dakar and defined objectives to reach before 2015 to enhance Education for All.

This paper presents challenges facing education of girls and women in Sub Saharan Africa in general, and particularly their scientific and technological education as a prerequisite for Africa's development.

2 – The Resolutions of Dakar

The Dakar conference in 2000 adopted the concept of Education for All before 2015 as fundamental, and one of the MDG.

Six main objectives have been defined:

- Early Childhood Care and Education
- Universal Primary Education
- Meeting the Lifelong Learning Needs of Youth and Adults
- Adult literacy
- Gender
- Quality of Education.

II - THE EDUCATION FOR ALL AND IBSE OF GIRLS AND WOMEN

1 – Introduction

Education is considered as a human right and a catalyst of development, and the education of girls and women is today recognized as the most effective development investment a country can make. It raises economic productivity, reduces fertility rates, lowers infant and maternal mortality, improves health, nutrition and wellbeing of families, and ensures better prospects for education of children.

Women are the foundation of life in Sub-Saharan Africa, due to their multiple and critical role in the family as homemakers, caretakers, workers, producers and managers of food and environmental resources (water and fuel). Their education does, therefore, act as springboard for sustainable development. Their scientific education develops their critical thinking skills, self esteem, math, language, and awareness of gender equality and human rights. It gives girls opportunity to know the potential they have. It therefore seems obviously important to attract girls and women in scientific and technological education, which begins by Inquired Based Science Education (IBSE).

Inquiry- based science education (IBSE) for girls must not hinder the objectives of EFA. If their goals are reached, we would have done a step of giant to attract girls and women in scientific and technological education. So, IBSE for girls is tightly linked with Education For All (EFA). In many African countries, large disparities remain in the enrolment to school of boys and girls.

Let us remind some of the efforts done across the world, and in sub-Saharan Africa in particular. Even if IBSE interests the six main objectives of EFA, we are interested most to Universal Primary Education (UPE), Gender and Quality in EFA.

2 – What is done

Huge progress is observed since the Conference of Dakar in 2000, but Education always remains a priority and most dominant challenge in the 2020 vision, according to the world's academies meeting of London in 2008.

a - Universal Primary Education

According to the UNESCO 2009 EFA report, UPE raised its average: the average net enrolment ratios for developing countries have continued to increase since Dakar. Sub-Saharan Africa raised its average net enrolment ratio from 54% in 1999 to 70% in 2006, for an annual increase six times greater than the decade before Dakar. (South and West Asia passed from 75 to 86%) during the same period.

In 2006, some 75 million children, 55% girls, were not in school, almost half in Sub-Saharan Africa.

Projections for 134 countries accounting for some two-thirds of out-of-school children in 2006 suggest that some 29 million children will be out of school in 2015 in these countries alone.

Children from poor households, rural areas, slums ... face major obstacles in access to a good quality education, while children from wealthiest 20% of households have already achieved Universal Primary School attendance in most countries.

Trends in primary education are susceptible to public policy. Ethiopia, Malawi, Burkina Faso, and Tanzania are making remarkable progress in increasing enrolment and reaching the poor, thanks to policy such as abolition of school fees, construction of schools in undeserved areas and increase of teachers recruitment (while poor education governance is holding back progress and keeping million of children out of school in Nigeria and Pakistan).

In 2006, some 513 million students worldwide (58% of the relevant school-age population) were enrolled in secondary school, an increase of 76 million since 1999. Despite progress, access remains limited for most of the world's young people. In Sub Saharan Africa, 75% of secondary school-age are out of school.

b - Gender

In 2006, of 176 countries with data, 59 had achieved gender parity in both primary and secondary education, 20 countries more than in 1999. At the primary level, about 2/3 countries have achieved parity. However, more than half the countries in SSA, South & West Asia and the Arab states had not achieved gender parity at secondary school level.

Poverty and other forms of social disadvantages magnify gender disparities. For example, girls from poor households in Mali are four times less likely to attend primary school than those from rich households, rising to eight times at secondary level.

Progress of girls in school is often hampered by teacher attitudes and gender-based textbooks that reinforce gender stereotypes.

Environment is also hostile to girls: the construction of two- facilities toilet has increased girls' attendance in a rural primary school in Tanzania.

2 - What is to be done before 2015

There is a huge work to be done. We may cite some elements

a – For early childhood education and care

- Strengthen the links between education planning and child health provision (using targeted interventions and more equitable public spending in health sectors)
- Prioritize early childhood education and care
- Strengthen wider anti-poverty commitments by tackling child malnutrition and improving public health systems, innovative social welfare programmes targeting poor households.

b – For universal primary education

- Fix ambitious long-term goals supported by realistic planning and sufficient medium–to-long term budgetary allocation to ensure progress in access, participation and completion in primary education.
- Support equity for girls, disadvantaged groups and underserved localities by setting clear targets for reducing disparities, backed by practical strategies for achieving more equitable outcomes.
- Raise quality while expanding access
- Strengthen policy commitments to quality education and create effective learning environment for all students (adequate facilities, well-trained teachers sensitized in gender, relevant curricula, clearly identified learning outcomes (a focus on teachers and learning should be at the heart of this commitment)
- Commit to the reduction of disparities
- Strengthen policies for reducing poverty and deep social inequalities, hindering progress of EFA
- Put equity at the centre
- Raise quality standards
- Increase national education spending

c – To promote girls in scientific and technological education

- Attribution of scholarships, awards, excellence prizes for girls who succeed in scientific and technological schools
- Avoid that poverty remain an obstacle to education of girls
- Enhance case stories of successful women in science and technology
- Fight social negative inhibits which frighten girls
- Creation of women scientific networks and associations
- Sensitize girls for scientific careers
- Organize workshops to strengthen scientific women capacities...

III – CONCLUSION

Many efforts are done across the world, to attract girls in scientific and technological education, but many disparities remain, due to political, social environmental or cultural factors or choices. These tentative to facilitate access of girls and women to science education have to be known and shared, because they are very enriching. I want to congratulate the ASSAf for the opportunity they give to the African scientific community to share the experience of our different countries.

SOME CONSTRAINTS TO GIRLS' EDUCATION

There are many factors hindering girls' education, these are some:

Household related factors

- Poverty
- Opportunity cost of schooling
- Household size (related to well-being of families)
- Level of education of parents

Socio-cultural factors

- Perception of school versus the society's cultural norms
- Traditional attitudes towards marriage
- Socialization patterns
- Social status of women in society
- Traditional practices

School related factors

- Inadequacy of facilities in school
- Gender bias in the curricula (teachers, books, syllabus ...)
- Low quality of education, lack of relevance and practical applications
- Hostile environment (exploitation of girls' labour and sexual harassment)
- School management practices discriminating against girls.

Policy related factors

- Policies of exclusion (pregnant, adolescent mothers)
- Inequitable policies and practices in resource allocation
- Gender blind policies in the selection and posting of women
- Inadequate policy for monitoring gender equity in education
- Lack of articulation in policies for achievement of gender equity