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# **EDUCATIONAL [WORK] PERFORMANCE IN AFRICAN COUNTRIES: PROBLEMS, POLICIES AND PROSPECTS**

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## **ABSTRACT**

Without education, development will not occur, only an educated people can command the skills necessary for sustainable economic growth and for a better quality of life. Recognizing this fact, African governments have placed heavy emphasis on expanding educational opportunities from primary school through university to the past four decades. More over, international organization has put so much emphasis on supporting educational expansion and improvement in Africa. However, education in Africa is in crisis today (and most especially for African universities). Enrollments rise as capacities for government support decline; talented staff are abandoning the campuses; libraries are out dated; research output are dropping, students are protesting overcrowded and inhospitable conditions; staffs are equally protesting poor working conditions (with continues strikes); university graduates are seriously underemployed or unemployed; and general educational quality is deteriorating. The need for action is urgent and thus effective educational policy making is imperative for the eradication of the identified problems.

## **INTRODUCTION**

“The formal institutions of education that exist today and even many of those in the planning stages in developing countries, are becoming less relevant to the requirements of emergent knowledge societies” (Rotarian. 1996; UNCTD, 1998).

Indeed, learning begins at birth and continues through life. Over the years, societies have developed systems of education to provide their youth and adults with opportunities and settings to learn in a purposeful and organized manner. An older informal system (trades and crafts learning) is mostly in swift decline and it is steadily giving way to a more formal system, which is the system of schools, colleges, universities and similar established institutions, organized and paid for (Haddad, 1994).

Thus, Indigenous Africa education among all groups remains an important transmitter of cultural identity from one generation to the next. In the colonial era, missionaries and metropolitan governments opened up a network of western type schools in Africa. However, the administration of education systems was dominated by expatriates, as was teaching beyond the primary level. Thus, the educational systems inherited by the African nations at the time of independence were quite inadequate to meet the needs of the new countries for self-governance and rapid economic growth. From this low starting point, the progress achieved in African education has been spectacular and quantitative expansion has been particularly impressive (World Bank, 1988)

However, these advances are now seriously threatened. Africa’s explosive population growth greatly increases the number of children seeking access to schools and increases the number of potential illiterates. And as long as enrolments stagnate, current inequalities in access to education are not likely to be eliminated. Male-female differentials remain a particularly serious problem. Complicating this problem are low levels and recent erosions of educational quality. Again, cognitive achievement among African students is low by world

standards, and there is some suggestion of further decline supplies of key inputs are critically low and the use of these inputs has declined in relation to the use of teachers time and of physical facilities. However, the direct evidence remains the poor performance of students. In particular, the African universities are seriously in crisis period. Thus, the mandated given to them at independence requires re-assessment as a result of changes in the world, in Africa, and in the university structures.

Internationally, the emergence of global markets has created a competitive world economics system characterized by rapid knowledge of generation and technological innovation. These changes affect local labor markets and the types of skills they require (saint, 1992). Again, high population have growth rated and increased access to education have boosted the social demand for higher education, leading to rising university enrolments and proliferation of tertiary institutions. Moreover, these universities are man-based and diversified institutions operating under severe financial constraints. Against, these observations, these is therefore a cluster of critical concerns, concerning the future form and substance of higher education in Africa. These include apparent declines in education quality; questions of curriculum relevance and appropriate distribution of students among the principal disciplines; the high and often unsustainable costs of university training; a need for improved university management; an ineffective working relationship between government and university; and equity issues surrounding access to higher education.

In fact, the relevance of universities to national needs is a growing concern for both government and citizens. Here, relevance include education al choices within the university that are germane to the national economy and in tune with the prevailing labor market; some capacity for critical and innovative thinking on issues of national importance; the transmission of essential professional and cultural values; institutional process and behavior that equip graduates for leadership in society; and regional, gender, ethnic representation in the composition of staff/students; and in the content of the curricula. Rising graduate unemployment, inadequate performance on the job and weak research production combine to bring

the relevance of universities under growing scrutiny. Attracting and retaining talented staff remains a problem for many of these universities. Declining salaries, deteriorating working conditions and increasing numbers of students (exacerbated by un-supporting political conditions) have prompted many staff to seek a better situation elsewhere. Statistically, the African academy of science suggests that African countries spend as little as 0.1 percent of GNP on research while developed countries

Spend twenty times as much (Saint, 1992). In supporting this fact, appendix A|B (African educational indicators) reveals the extent of educational devastation in Africa. This therefore suggests that a more challenging phase of reform and renewal awaits the continent.

In fact, the current crisis in African educational system is now wide spread and requires urgent policy response from governments, universities and international organizations. However, educational development is extraordinarily complicated because it involves and affects a large number of beneficiaries and providers, as well as political figures, all of whom have a stake in the process and the outcome. Added to this, is the long gestation period for any policy to realize its objectives. For these reasons, policy change should not be introduced lightly nor should it be abandoned without careful examination. Thus, the basic thrust of this paper is to propose reform measures for revitalizing and reactivating African education system in the 21<sup>st</sup> century of knowledge societies. This objective therefore requires us to fully and thoroughly formulate and evaluate policy options, taking account of different rationalities and to devise plans of a broad enough nature that can be adapted overtime (and that complement policy at the national levels).

The rest of the paper is divided into nine sections. Section two examines the early development in Africa while section three looks at basic formal education. Section four is concerned with tertiary formal education while African informal and lifelong education is the theme of section five. African female education is the discussion of section six. Again, section seven explores the African labor market while policy reforms are presented in eight; the paper is concluded in section nine.

## **2.0 AFRICAN EARLY CHILD DEVELOPMENT**

Early child Development (ECD) remains one of the most powerful levers for accelerating education for all and the international Development Goals on poverty reduction. Children who are well nurtured during their first years of life tend to do better in school and stand a better chance of developing the skills required to contribute productively to social and economic growth. However, as child ages environmental effects appear to accumulate. Poor cognitive and social abilities are associated with weaker future academic performance and lower adult economic and social outcomes, including poor health, antisocial behaviour, and violence. These under achieving adults influence the cognitive abilities of the next generation of children, creating an intergenerational cycle of poverty and unequal opportunities. Thus, early interventions can substantially enhance a child's life chances and loosen intergenerational grip of poverty and inequality. Early childhood development programs comprise a range of interventions that include providing nutritional supplements to children, regularly monitoring their growth, stimulating the development of their cognitive and social skills through more frequent and structured interactions with a caring adult, and improving the parenting skills of caretakers. The evidence suggests that these programmes can be highly effective in addressing problems experienced later in schooling and adulthood. Evidence is also mounting that interventions in early childhood particularly benefits poor and disadvantaged children and families.

Indeed, interventions to improve your children's capacity to develop and learn an focus on improving parents teaching and child care skills, delivering services in a community. Programmes may be established in homes, day-care centres or communities. Evidence have suggested that three design features are important for the full realisation of benefits from ECD programmes starting early; having strong parental involvement; and focusing on child health (especially nutrition) and cognitive and social stimulation. Here, the focus on health leads to a virtuous cycle because improved health also helps increase cognitive and social abilities.

Some formal programmes can be too expensive for poor families, culturally irrelevant and insensitive to families needs. They thus run the risk of being abandoned even when they demonstrate high returns. For the implementation of ECD programmes, political economy constraints arise from the difficulty of making a case for spending resources on programmes with the promise of (uncertain) benefits to come only year in the future. Such a case is often made by the immediate beneficiaries (parents of school-age children) or intermediate beneficiaries (teachers) who organise themselves into powerful political forces. But the institutional set up for ECD programme delivery (with funds in many instances channelled to myriad small NGOs, community centres or home based caregivers) and the absence of strong central responsibilities inhibit organised political pressure. The same institutional set-up generates problems of integration with other government programmes and of co ordinates across several government departments. Getting information to parents, community leaders and policy makers about the objectives and efficiency of ECD services can build public awareness and strengthen demand. Monitoring systems build support by providing timely feedback on a range of intermediate output to policy makers and programme managers, while proper evaluations provide more convincing evidence of impact and broader lessons from interventions. Integrating ECD programmes into the broader development frameworks and involving parents, families and community members enhance the sustain ability of programmes.

There are several possible approaches to scaling up ECD interventions. In the first place, expand publicly funded preschool programmes to all children by making it a statutory right. Definitely, this would have significant funding implications but the benefit is potentially widespread support from middle-class and poor families with children. The second approach targets disadvantaged families and this may be more cost effective. To bolster participation, the programme could be supplemented by cash – transfer scheme, with transfers



conditioned on various desirable behaviours, including changes in the home care environment, as well as regular health centre visits for growth monitoring, immunizations and nutrition interventions. While targeted programmes have a smaller constituency (and thus would not benefit from a broad coalition of support); a national programmes with transparent criteria for eligibility and good monitoring of conditionality (could mobilize support not only from the direct beneficiaries but also from other stakeholders in society). It is also possible to combine a universal pre-school approach with a conditional cash transfer programme. This would yield the highest benefits in the participation of the poor and the productivity gains for all, but it would also be more costly. However, the final approach adopted would have emerged from considerations of cost, benefits and fiscal capacity (reflecting the political economy).

### **3.0 FORMAL EDUCATION; BASIC**

Essentially, education is a great equalizer of opportunities between rich and poor and between men and women. But this equalizing promise of education can be realized only if children from different backgrounds have equal opportunities to benefit from quality education. African societies have a long rich history of education traditions. Indigenous education was offered by all ethnic and linguistic groups and remains an important transmitter of cultural identity from one generation to the next. It aims to instill in children the attitudes and skills appropriate for male and female social roles, emphasizing the duties and privileges derived from cultural values. Imparted through language, as well as in formal lessons and rituals outside the home, the indigenous education responds to the concrete problem of local communities. However, African early Christian heritage represents a second important element of education in the region, with roots extending back long before the colonial period. A third major antecedent to the colonial period is the influence of Islam on African education (with Arab culture and language being adopted in much of North Africa). The western colonial period in sub-Saharan Africa began with the arrival of the Portuguese in the fifteenth century. This colonial precedent is still much in evidence in most of Africa, and sometimes they constrain the degree to which governments are free to initiate new policies.

Indeed, the principal suppliers of western style education (pre-independence) were the colonial governments and the Africa missions of the Roman Catholic and various protestant churches here, the division of administrative and financial responsibilities between government and church differs from one colonial region to the next. In their quest for converts and literate governments opened up a network of schools in the region. Many were based for the most part on overseas models and deflated little in the economic changes that the colonial powers set in motion helped create a demand for western style education. Thus, education became the vehicle for moving within one generation, from peasantry and

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Indeed, the principal suppliers of western-style education were the colonial governments and the Africa missions of the Roman Catholic and various protestant Churches. Here, the division of administrative and financial responsibilities between government and Church differed from one colonial regime to the next. In their quest for converts and literate African subjects, the missionaries and colonial governments opened up a network of schools in the region. Many were of a high standard and yet the curriculum were based for the most part on overseas models and reflected little in the way of Africa content. Nevertheless, the economic changes that the colonial powers set in motion helped create a demand for western-style education. Thus, education became the vehicle for moving within one generation, from peasantry and poverty to the topmost ranks of society. Yet, access to education was quite limited and especially in the thinly populated areas of French West Africa. In 1960, the gross primary enrollment ratio in all of sub-Saharan Africa was only thirty-six percent. The enrollment ratio was thirty-eight percent in the francophone territories and forty percent in the Anglophone territories. Unfortunately, many countries in West Africa and East Africa had over ninety percent illiteracy at the time of independence. Again, different Africa peoples were regarded and treated differently by colonial administrators; the cost of providing education differed, certainly between urban and rural area; some population groups were more responsive than others to educational opportunities; and most Africans (responding to the incentives imposed by matrilineal customs) preferred education for their sons to education for their daughters. Consequently, problems of unequal education participation frequently transcended colonial

patterns in Northern Nigeria had less in common with those in the same British territory than with those in the north or neighboring French Cameroon. Such within country difference and between-country similarities remain evident today. However, transition rates from one educational level to the next were low in 1960, and educational dropout rates were high. Here, the systems of education inherited by the African nations at the time of independence were altogether inadequate to meet the needs of the countries for self governance and rapid economic growth. And yet quantitative expansion has been particularly impressive.

Basically, primary school enrollments increased the most in absolute terms, growing from approximately 11.9 million pupils in 1960 to 51.3 million pupils in 1983 (as shown in table 3.1). The gross primary enrollment ratio rose from 36 percent to 75 percent over the period. Again, the building of schools and training of teachers to accommodate the additional students throughout the region were mammoth achievements. Between 1960 and 1983, the number of primary schools in sub-Saharan Africa increased from about 73,000 to 162,000 and the number of primary school teachers, from 310,000 to more than 1.3 million (World Bank, 1988). Although the average pupil teacher ratio remained roughly the same during this period, the average primary school size increased from 162 pupils to 317 in 1983.

Table 3.1 sub-Saharan Africa: school enrollments and enrollment ratios (1960 – 1983)

<b>LEVEL</b>	<b>1940</b>	<b>1983</b>
Primary Education Enrollment (thousands)	11,900	51,300
Gross Enrollment ratio (percent)	36	75
Secondary education enrollment (thousands)	800	11,100
Gross enrollment ratio (Percent)	3	20

The number of teachers employed at the secondary level also increased tremendously between 1960 and 1983. This massive educational expansion, which began in some countries in the 1950s and intensified after independence, built up the stock of human capital considerably. Unfortunately, this trend was not sustainable in the later years (as statistically shown in appendix A and B). Again, the amount of resources allocated to education before 1990s reveals the high degree of commitment of African nations to educational development and explained the significant advance that occurred in the sector during this period. However, the impressive gains won in African education are now seriously threatened by circumstance outside the sector, including Africans explosive population growth, which swells the number of potential illiterates on the continents, an Africa's recent economic decline, which has necessitated significant cutbacks in public spending. In other words, current economic and demographic realities undermine both the quantitative and qualitative educational advances achieved since independence (Nwaobi, 2000). Retrogression in education will, in turn, make the solution of these problems more difficult and so the pattern is repeated as it is destined to continue (As shown in appendix A and B).

#### **4.0 FORMAL EDUCATION: TERTIARY**

After independence, African higher education developed relevant curricula and revised its content to reflect African priorities, legitimized research and established specialized university research units, largely replaced expatriate faculty with indigenous staff, and fostered fledgling intellectual communities. Here, a major achievement has been to produce the skilled human resources required to staff and manage public and private institutions in the newly independent states. Specifically, African universities have registered remarkable progress in their efforts to become legitimate national institutions of higher learning. The proportion of indigenous teaching staff has risen from sixty – four percent in 1978/79 to eighty – four percent in 1986/87 (Saint, 1992). Curricula were also revised to incorporate national content and interests, and graduate training programs were launched. Here, graduate output in the region rose impressively from 17,000 in 1970 to 83,000 in 1987. Despite of severe economic constraints in many countries, university enrolments expanded steadily during the 1980s. However, this expansion did not occur at the same pace in all countries. Overall, the university student population in the region increased by 61 percent between 1980 and 1990; and rose from 337,000 to an estimated 542,700. In the process, higher education systems began to differentiate and in many cases the new universities were given specific mandates to focus on agriculture, education, science and technology. In spite of this impressive growth, access to higher education remains more limited in Africa than in other regions of the world (as shown in appendix A and B). In other words, the output mix of Africa universities has come under increasing scrutiny as their initial task of producing professionals to lead and manage the institutions of government has been largely accomplished, and spreading policies of economic liberalism seek to promote more diversified local economies. Here, a majority of countries have fewer than fifteen percent of their university students enrolled in natural

sciences, mathematics and engineering while in other African countries, the proportion of students in the sciences actually declined.

Indeed, attracting and retaining talented staff has now become the biggest current problem for many African tertiary institutions. Declining salaries, deteriorating working conditions and increasing numbers of students, exacerbated by un-supportive political conditions, have prompted many staff to seek a better situation elsewhere. As a result, many universities are left with young, inexperienced and insufficiently trained staff that lacks the necessary mentors and role models to guide them. While others have recently been forced to curtail enrollments and postpone graduations due to staff shortages. Again, research output has lagged behind the training accomplishments of African universities and lack of national investment in research is one reason for this weak performance. Unlike developed countries, African countries spend as little as 0.1 percent of GNP on research. Government allocations for university research are largely non-existent, and foreign donors have endeavored to offset this short fall.

In contrary, community service has not become an institutionalized activity in most universities. Again, it is not apparent that universities possess any comparative advantage in assuming service responsibilities over the rapidly expanding number of African non-governmental organizations that appear better equipped for this purpose.

It is unfortunate that the universities and the governments that support them exist in an uneasy and sometimes adversarial relationship across much of sub-Saharan Africa. The source of this tension have been the governments' perception of the university community as a frequent locus of criticism and political opposition; the increased involvement of governments in university affairs, and the inability of governments to provide for the financial needs of universities on sustainable basis. As portions of the African university community began to question public policies and decisions, governments frequently felt that

their development partnership with universities had been betrayed. They therefore reacted by seeking to monitor and control university activities. Indeed, private universities offer one way of diversifying the financial base of national higher education systems without adding significantly to government costs. At present, private universities are insignificant in Africa and as long as public higher education is provided by governments at little or no cost to the individual (and private higher education remains entirely self-supporting) private universities may continue to play a very minor role.

In several cases, existing governance structures constrain university responsiveness to internal constituencies, to local labor markets and to society's needs in general. They are often dominated by the chief executive, controlled by government, and constrained by cumbersome decision making processes. Here, mechanisms of internal communication with staff and students are weak, and external articulation with civil and business communities is frequently non-existent. Again, maintenance of university buildings and equipment is a little recognized problem which has a direct bearing on educational quality, where classrooms are poorly lit, bathrooms do not function, and laboratory equipment is broken, student learning becomes more difficult. These problems are compounded where institutionalized maintenance programs (and budgets for them) do not exist. Against this backdrop, a cluster of critical concerns now frames discussion concerning the future form and substance of higher education in Africa. Principal among them are apparent declines in educational quality; questions of curriculum relevance and appropriate distribution of students among the principal disciplines; the high and often unsustainable costs of university training; a need for improved university management; an ineffective working relationship between government and university; and equity issues surrounding access to higher education. In order to address these concerns, African nations must answer certain basic questions; what kind of tertiary institutions can they afford.



## **5.0 AFRICAN INFORMAL AND LIFE LONG EDUCATION**

After independence, over fifty percent of all adults in sub-Saharan Africa had never attended school and over ninety percent had never completed the primary cycle. Today, because of higher enrolment ratios, these figures should decline more rapidly in the future than they have in the past. But in many other countries, it is still not fast enough (given population growth) to reduce the absolute number of persons with little or no formal schooling obviously, this is a continuing waste of human potential. Consequently, is there anything that can be done to provide these persons with at least some minimal education or training (Ridker, 1994)? In the late 1960s, a variety of informal education (NFE) programs were proposed to answer this question, and governments, donors, and NGOs initiated a number. Other concerns include adult literacy and numeracy; practical agricultural subjects; home economics; health and hygiene; local history and civics. The Bank reacted favorably and proceeded to support a variety of programs. Most of these programs were small and often experimental or pilot efforts embedded in larger education projects. Typically, the largest portion of funding in these components was for foreign experts to help with curriculum development and the design and production of new teaching materials, though a few included building, furniture and equipment that significantly raised costs, unfortunately, few of these efforts accomplished much and none achieved a significant degree of sustainability (independent of outside support). Yet, they rendered the centers more attractive by facilitating the education of participants beyond the basic level. In addition, dropout, mastery, and retention rates appeared to be low. At least, this was the conclusion one can draw from a global review of adult literacy programs. This review found that each of these rates averages around fifty percent, so that the overall effectiveness rate for some projects may be only twelve to fifteen percent (Ridker, 1994).

However, given the largely negative experience, the bank lost its enthusiasm for the sub sector. Thus, the prevailing view came to be that the

resources used in non formal education would be better used to expand primary education more rapidly so that there would be fewer persons in future generations who did not have at least a basic education. Specially, there were two main reasons for the disappointing results first, too much was expected of these projects and in the enthusiasm of that time; they were promoted by some as alternatives to formal primary education. Thereafter, as they accomplished much less, disappointment and disinterest set in. again, proposals for such programs tended to be accepted indiscriminately, without much investigation of their merits, potential audience, costs, or implementation capacity. Borrower inputs into these projects were minimal, resulting in the absence of any sense of commitment or ownership; and the bank staff was largely inexperienced in this sub sector. For instance, most of these projects paid insufficient attention to the immediate usefulness to the participant of the materials being taught, despite evidence of the importance of this factor in explaining dropout, mastery appropriate reading materials for new literates, so as to maintain their interest and reduce the likelihood of their losing their skills after the program ends (that is, all issues not adequately pursued in previous African prices).

For the Nigeria case, the main anchor for the education for all programs was the national commission for mass literacy: Adult and non-formal education (NMEC). Its basic responsibility was to develop the necessary strategies and coordinate literacy and post-literacy programs nationwide. The crucial link between women's education and child survival and development makes early intervention (formal or non-formal) imperative for young girls of primary school age and for adolescent girls. Particularly distressing was that many children were leaving school unable to read and write, and unprepared for future education or productive participation in society. Added to these are many other children who for one reason or the other never attended school and have therefore remained illiterate. In a survey of the out-of-school children (UNESCO, 2000) 152 non-formal education institutions was included. Here, 50% of the institutions were

owned by Government (Local, state and Federal); the rest were distributed among communities, religious organizations, NGOs and Corporate bodies. The institutions provided mainly vocational skills training and literacy classes. Their facilities were well equipped and their clients were mostly within the 19 – 19 age group while some were obviously older. Again, the curriculum seemed to focus more on home economics, secretarial studies, heaving, etc, than the more “Male wrested” skills like welding motor mechanics, carpentry, etc. however, some of these out of school programs have not succeeded in forgoing links and creating mechanisms/safety nets for establishing equivalence and linkage with the dominant formal system.

## **6.0 AFRICAN FEMALE EDUCATION**

Indeed, female education is recognized as one of the critical pathways to promote social and economic development. Evidence from sub-Saharan Africa indicate that although there have been improvements in female participation, girls and women's access to education remains limited in several countries across the region. It is evident that, once enrolled, girls are more likely to drop out of school than boys; and that few girls opt for math and science related fields of study (Odaga and Heneveld, 1995). Thus, increasing girl's participation in education has been identified as one of the most significant developmental challenges facing sub-Saharan Africa. Generally, the enrollment rate of girls remains lower than that of boys; their drop-out and absenteeism rates are higher; and their achievements and performance poorer (particularly in mathematics and science). Here, we highlight the state of knowledge about the factors that influence female education in sub-Saharan Africa. These factors may be categorized in several ways. Some of these factors are related to institutional policy and practices; other are associated with society's customs, beliefs and attitudes about women's roles, responsibilities and capabilities. In other words, these, factors can be summarized into three categories: socioeconomic (socio-cultural) factors; school environment factors; and political (institutional) factors. Socioeconomic and socio-cultural factors (which influence the demand for female education) are significant in parental and familial decisions on whether to invest in female education. Pervasive gender ideologies are the household and community levels often favor males over female and promote differential educational opportunities and outcomes. Schools have been implicated in promoting the non-participation of girls in education. Again, school related factors affect both the supply of and the demand for female education. Political and institutional factors relate to government policies, practices

institutions that overtly or covertly promote gender biases and affect women's participation in educational systems.

Essentially, non-indigenous education was introduced to sub-Saharan Africa through Islam and Christianity. Here, female education was considered relevant only if it promoted the introduction of Islam or Christianity and the consolidation of religious communities. When the colonial state became central in education, the education of women was also not an important concern. Thus, there was much resistance to western schools in the early days and the idea of sending children, particularly girls to formal schools was considered preposterous by local communities. However, when the women's education was considered part of the educational development program for indigenous communities, the type of education provided was as a vehicle for promoting domesticity. Here, a limited number of African women were trained to be good housewives and mothers, primarily for the emergent male clerks and church officials. In the process, the notion of the African woman as a dependent housekeeper wife and mother confined to the home and economically dependent on a husband, the breadwinner, was introduced into African cultures. Thus, the cost of this externally imposed tradition in conjunction with the local tradition was heavy for African women; and they continued to take responsibility for providing for their families but did this without the benefits that accrued from access to education. Indeed, the following explanations given for not educating girls when the colonial powers introduced schooling include the threat to female chastity; control over women's productive and reproductive labor; women's economic value in bride wealth and productive and reproductive activities; apprehension that educated girls will not make 'controllable', obedient and subservient wives; widely held belief that it is a waste of money to educate a girl who will leave home on marriage and not contribute to the maintenance of her

natal home; limited relevance of formal education for girls; limited labor market opportunities available to education girls; and the prohibitive costs of formal education.

Indeed, the quality of students chosen affects the quality of a country's future leadership, its capacity to compete in regional and world economics, its long-run chances for developmental progress, and even its political stability. Considerations of quality and representativeness interact to produce the specific selection policies in each country. Achieving the right balance is not easy and a nation's best potential minds (regardless of gender or ethnic background) should be given the opportunity for full development. Thus, women-specific institutional initiatives appear to have produced a positive impact on women's participation at all levels of the education system in several countries specifically, in Nigeria (1986), a women education branch was created within the ministry of education. Its objectives are to promote public awareness of the benefits of educating women and to provide women with improved opportunities for formal and non-formal education a partial result of the branch's considerable effort was that female enrollments in the primary schools increased over a five year period from twenty-nine percent to forty five percent in Kano state and thirty-five percent in Kaduna state (Saint, 1992). Also (in Nigeria) a National Association of women in science, technology and mathematics was established. This expanded female participation in science based courses by means of a national awards scheme and a motivational "road show". Similarly, in Ghana, universities have accepted the need for increased female participation and have decided to allocate residence hall space in accordance with the number of women admitted. This consequently removes limited space available in women's residence hall as an artificial constraint on women's access to university.

Appendix A and B show the extent of gender educational disparity in African countries.

## **7.0 AFRICAN LABOUR MARKET**

Human capacities (problem solving abilities, command of relevant factual information, and technical, managerial and entrepreneurial skills) are acquired through education and experience (learning by doing). On both units, African nations achieved independences with severe deficits. Few persons had ever been to school and had also attended school beyond the primary levels; and few had skills beyond those needed for subsistence agriculture and petty trading activities (Ridker, 1994). During the past decades, considerable progress has been made but this was not sufficient to significantly reduce Africa's dependence on expatriates for the operation of many vital functions. Particularly worrisome is the reduction in the capacity of much education system to produce the numbers and qualities of educated persona needed by these societies to take leadership roles in science, technology, management, and business. A data review on the stock of trained persons, use of expatriates, and capacity of the education systems makes these points clear. Appendix A and B provides a picture of the educational attainment of Africa's adult population as well as evidence for females and for individuals countries. Other measures of the stock of human capital are more difficult to find, but the few that exists point in the same direction. The skill shortages suggested by these numbers, especially at more senior levels, are reflected in the numbers of expatriates working in Africa and in the types of tasks they are performing. These expatriates often provide invaluable services. Without them, there would be no medical schools, agricultural research institutes, physics departments, or modern telecommunication systems in many African countries. But there are increasing concerns that they sometimes

provide the wrong advice, sometimes crowd out locally available skills; may have high opportunity cost; and in a number of different ways, may be increasing dependence on the continuation of their services.

Essentially, the principal causes of this situation (persistence of shortages of trained Africans for higher level positions) can be grouped under three headings: the character of development strategies in SSA, financial and other problems playing the education system, and the character of the labor markets for third factor with operational relevance that helps explain the continued shortage of skilled Africans has to do with the operation of the labor markets for these skills, which causes expatriates to be hired in place of Africans and Africans to seek employment outside their local market. Thus, increasing the skills and capabilities of workers is the key to economic success in an increasingly integrated and competitive global economy. Investment in people can boost the living standards of households by expanding opportunities, raising productivity, attracting capital investment, and better increasing earning power. Also, better health, nutrition and education have value in their own right, enabling people to lead more fulfilling lives.

Unfortunately, capital, land and labor markets in Africa countries are imperative. Informational asymmetries and contract enforcement problems imply that some people with good project ideas end up constrained in their access to capital. This, even as other people earn a lower return on their capital. In agriculture, land market failures mean that some farmers exert too little effort on some plots and too much effort on other plots. Investment in human capital can also be allocated inefficiently, because of intra-household disputes, because credit constrained households lack the resources to keep their children healthy and in school or because indiscriminate in the labor market reduces the expected returns to schooling for some groups. Consequently, such



diverse market failures cause difference in initial environments (such as family wealth, race, or gender) to make investment less efficient.

Specifically, in Nigeria, the future outlook tertiary education seems grim and the problems are coming from the staff dearth of “experienced and highly qualified staff” needed to impart knowledge to students. The pressure to recruit staff has forced universities to recruit people who have no business being in universities in the first instance. In effect, academic standards are suffering a decline and future development of manpower for the industries may be threatened. In other words, the quality of tertiary education in the future will be far worse than what it is at the present. In the oil and gas industry, there is also a severe dearth of manpower. Here, mostly affected, is the upstream sub-sector where specialized training is required because of the application of cutting edge technology. The dearth of trained manpower in the oil and gas industry has also led to the influx of expatriate workers into the country through the abuse of expatriate quota.

This acts indeed a source of worry for the two in-house unions in the oil and gas industry (petroleum and Natural Gas senior staff Association, PENGASSAN) and its junior staff counterpart (National union of petroleum and Natural Gas workers of Nigeria, NUPENG). Even, in the information technology (IT) industry, manpower shortage is biting harder. As a result of the shortage, scores of expatriates now go in and out of the country on regular basis to take up jobs that should ordinarily be handled by local nationals.

The GSM operators such as MTN, V Mobile, M-tel and Globacom rely heavily on expatriates to man vital positions. The fixed wireless operators such as multilinks, Reltel, starcomms, MTN first wireless and intercellular rely on external skills to ensure that their systems do not grind to a halt. A survey report revealed that out of the numerous staff in

the engineering departments of these networks; about 90% are foreigners. For operators in a technology sensitive sector like variations, the depletion in the ranks of aircrafts, pilots, engineers, flight dispatchers, cabin crew, aeronautical radio engineers, traffic controllers and flight inspectors is becoming a matter of serious threat to the industry. Similarly, in key aviation agencies the Nigeria civil aviation Authority (NCAA) federal Airports Authority of Nigeria (FAAN); Nigeria Airspace management Agency (NAMA), vacancies are being advertised in national newspapers and magazines for sensitive positions like flight controllers, pilots, engineers and technicians, with little success. The major reasons being the dearth of qualified professionals to take up the positions. Consequently, the nation is affected by shortages in all its critical sectors with the resultant growth implications.

Indeed, the challenge for governments is to design interventions that balance equity and efficiency goals in ways that are within a country's institutional capacity. History suggests that this is a complex task, and there are real tradeoffs that need to be assessed. Here, different societies are likely to make different choice. However, there are many ways of getting labor market institutions "wrong". And when countries get it wrong, one segment of the labor market benefits from others. Protection at the expense of other outcomes is highly unequal and the costs to efficiency and growth are usually severe. Governments also get it wrong if they intervene extensively in the labor market when production markets are not competitive. Things can also go greatly wrong when governments mandate protection with no attention to incentives. The duration of unemployment, with its destructive impact on human capital, loss of employability, weakened ties to economic and social life, and for many, high degrees of poverty and social exclusion. Thus, reforming labor market institutions is technically and politically difficult. It is technically

difficult because reforms need to be coordinated across a variety of labor market institutions and often also with reforms outside the labor market. It is politically difficult because there usually are vested interests in maintaining the status- quo. Moreover, the short-term costs of reform can be large and unevenly distributed. Take reforms to reduce employment protection: those currently protected see themselves as having much more to lose from reform than to gain from such a reduction. And if they are also politically influential (represented by unions and with political voice) their power to block reforms may be insurmountable barriers.

## **8.0 POLICY REFORMS**

The notion of educational development (educational sector and how can be made to grow and function more effectively) Implicitly suggests a well –structured field of unambiguous issues, clearly defined objectives, mutually exclusive choices, undisputed causal relationships, predictable rationalities, and rational decision makers. In other words, educational development is actually a series of untidy and overlapping episodes in which a variety of people and organizations with diversified perspectives are actively involved (technically and politically) in the process through which issues are analyzed and policies are generated, implemented, assessed and redesigned (Haddord, 1994).

Accordingly, as analysis of the education sector implies as understanding of the education policy process itself the “how” and “when” of educational development. Here, we define policy functionally to mean: An explicit or implicit decision or group of decisions, which may set out directives for guiding future decisions or initiate, sustain or retard action or guide the implementation of previous decisions. Policies, however, differ in terms of their scope, complexity, decision, environment, range of

choices and decision criteria. This range is schematically depicted below:  
 Figure 8.1

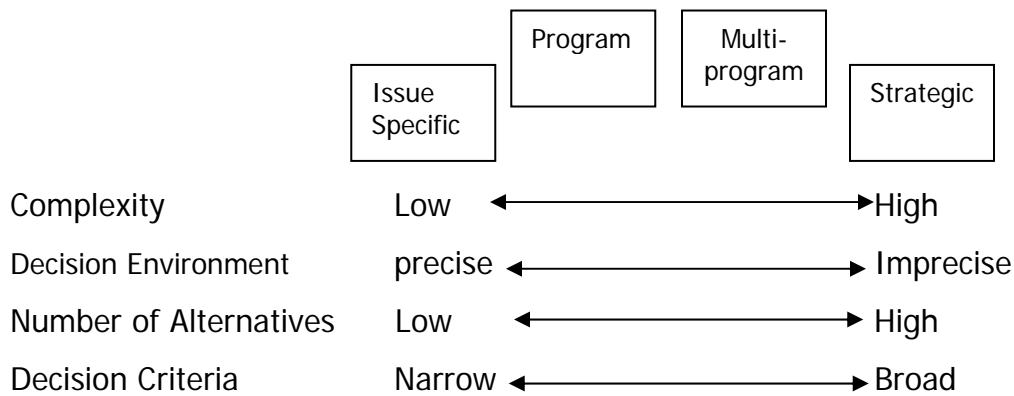
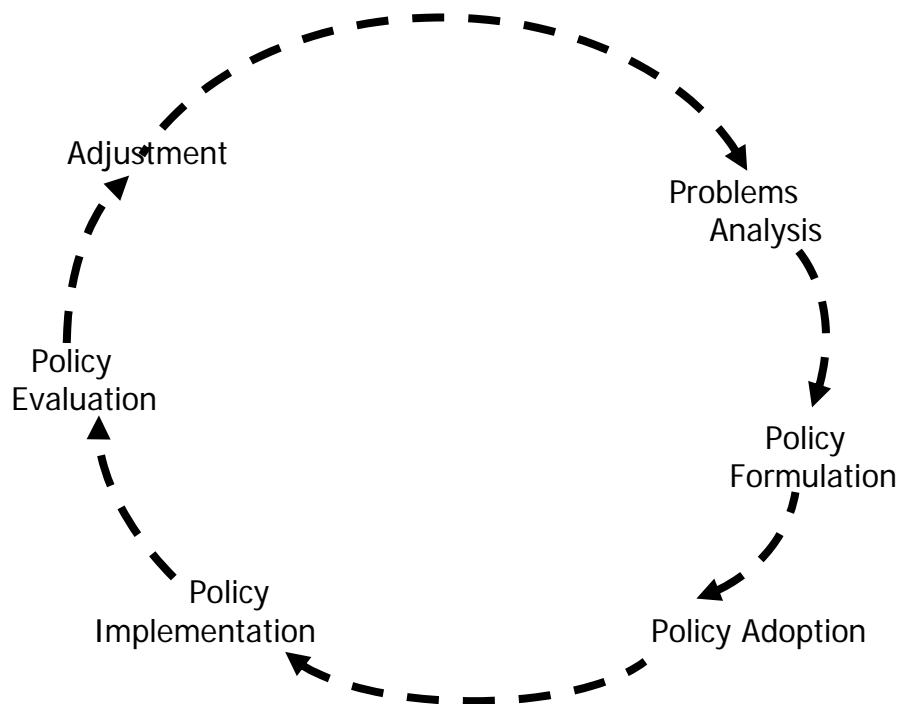


Figure 8.1 Policy Ranges

Issue – Specific policies are short-term decision involving day-to-day management or as the term implies, a particularly issue. A program policy is concerned with the design of a program in particular area, while multi-program areas. However, strategic decisions deal with large-scale policies and broad resources allocations.

Although, decision-making is a crucial element in the policy process, clearly, it is preceded by analytical and /or political activities (analysis, generation of options, bargaining, and so forth) and followed by equally important policy – related activities (implementation, assessment and possible redesign). This study therefore introduces a framework for education policy analysis that covers the pre-policy decision activities, the decision process itself and the post –decision activities. It is not a replica

of reality but rather a conceptual model to catch from reality those elements that can be detected and analyzed. It is therefore broad enough to capture and integrate the intricate process of any policy making model. Yet, at the same time it should disintegrate the process into components to determine how they work and interact.



**Figure 8.2 The Policy Cycle**

But given the state of the art of decision theory and the nature of educational development and education policy making, the education policy cycle may be describe in terms of the main activities schematically summarized in figure 8.2. However, since the purpose of this framework is to provide a basis for policy analysis, the policy cycle is broken down further in order to highlight the dynamics flow procedure, interaction) of policy making. The resultant framework consists of eight policy processes:

analysis of the existing situation, generation of policy options; planning for policy options; evaluation of policy options; making the policy decision; planning for policy implementation; policy impact assessment; and subsequent policy cycles. This framework looks complicated because inevitably, it is multifaceted and covers a wide range of process. However, any attempt to restrict policy analysis to certain elements or to disregard one element results in an incomplete approach to policy analysis.

Indeed a policy change is normally a response to a problem or a set of problems in the sector, and must therefore; start with an appreciation of the educational sector (universities) and its context. In addition to the analysis of the sector itself, policy analysis should consider a number of aspects of the total context including political, economic, demographic, cultural, and social issues which are likely to impinge in various ways on the education sector and its decision making and even implementation processes. New policies are usually generated when the present situation of the sector and its contexts is perturbed by a problem, a political decision or a re organization scheme (overall national planning). Policy options can be generated in several different ways to accommodate the disequilibria. For analytical purposes we can group these processes under four categories: the systematic mode, the incremental mode, the ad hoc mode, and the importation mode. In the third policy processes, policy options can be evaluated only if estimations of their likely implications are made. The "Imaginary" situation that could be created, if a policy option were implemented, is compared with the present situation, and the transition from the existing to the imaginary case is evaluated in terms of feasibility, desirability and affordability.

Ideally, the final policy decision would be the result of evaluating the different policy options in terms of the criteria outlined above, and selecting the most balanced compromise between the best technical

indications of research findings and analyses of data, on the one hand, and on the other, the realities of finance, personnel and time, and the demands of a variety of stake holders. In real situations, optimal options will not be always selected and balances will probably not be perfect, so that the analyst would be wise to identify their weakness and prepare adjustments for them. And once a policy has been chosen, planning for policy implementation should begin immediately. Although much of the work that must be carried out during this stage can be based in evaluations performed to make the policy decision, planning for implementation involves concreteness absent in earlier stages of the policy process.

Similarly, the stages of implementation are included in the discussion of policy analysis because much policy formation, de facto, takes place during this stage.

Once the policy has been in place long enough to produce results, a policy assessment check should be implemented. "Long enough" requires some sense of how long it should take for the policy to take hold. In this respect, a policy should not be junked until the adequacy of its implementation is evaluated. However, if assessment reveals lacks in outcomes and if implementation can be shown to have been well done, then it is necessary to re-examine the policy decision and determine what adjustments or new policies should be substituted for the original choice. Once this is accomplished, the planning for implementation and implementation stages of the cycle can be revisited. And if a policy initiative is carried out systematically, the process of policy design, planning, implementation, impact assessment, and redesign will become iterative and in theory, infinitely so, as the framework suggests policy analysis is best carried out continually with knowledge accumulating

from one cycle to the next in the way an educational system can evolve with both respect for its part and in response to needed changes.

Critically, efforts at any educational reform stand little chance of sustainable success unless they are grounded in broad public consensus. In Africa, a wide cross section of society has a personal stake in the university and feels competent to advance opinion on university related matters. Thus, consensus building should constitute the first order of business on any agenda for educational reform. This is important because it allows for testing of the political feasibility of proposed changes before actual decisions are made. The challenge is not just to identify potential solutions, but also to determine those that are politically viable under specific circumstances and to discover the pace and conditions under which they can best be implemented.

International development assistance will again play a prominent role in efforts to stabilize and revitalize African educational systems. This is because of the fact that severe financial constraints at the national level have (in many cases) reduced government funding for higher education to salary support and essentially operating costs. Funding for new initiatives, pilot projects, and special investments is most likely to come from outside sources. But donor policies must be modified if their assistance is to be effectively applied in support of African educational renewal. Specifically, donors are urged to support institutional strategic planning exercises in response to the university initiatives. These exercises should seek to develop a mission statement for the university, which responds to present and future national circumstances, and to support this with appropriate cost projections. Flexible funding requires that donors allow universities greater management initiatives in the use of such funds. But it necessitates agreement on appropriate mechanisms of accountability (institutional work plans, annual reports, yearly audits) to address donors



stewardship obligations in the disbursement of public funds. Here, one of the most promising uses of targeted flexible funding may be for institutional linkages. However, in the long run, African universities must strive to reduce their dependence on international development assistance and to cultivate local donors within their own countries. These local donors include alumni, business, and professional association's policy makers with ties to the university.

Each African country should embrace the task of formulating and implementing as internally coherent set of policies that will reflect the country's unique history and aspirations and effectively address its own exacerbated problems in the education and training sector. Although the particulars of the policy packages that emerge would vary from one country to the next, it is none the less clear that every country – specific package will need to contain, in varying proportions, elements of policy along three distinct dimensions; adjustment, revitalization and selective expansion.

Adjustment to current demographic and fiscal realities is essential if the disrupted effects of these external factors are to be minimized in the years ahead. Here, the diversification of educational finance will be a necessary part of country specific policy packages. This diversification can be achieved through increased cost-sharing public education and through increased official tolerance and encouragement of non-governmental suppliers of educational services. The region containment of unit cost is equally important. Revitalization of the education infrastructure will give renewed emphasis to the fundamentals of providing education services so that maximum advantage is extracted from the current capacity of education and training systems. For the restoration of quality, some measures are necessary. Textbooks and learning materials must become generally available in the classrooms. There must be a renewed commitment to academic standards (through examination system Strengthening). Greater

investment must be made in maintenance of physical past and equipment and in operational expenditures.

For the selective expansion dimension, renewal of progress toward universal primary education is the new investment that will bring the highest economic and social returns in many countries. All the secondary level, expansion of enrolments in selected subjects and streams will be necessary in most countries in the year's head. And to accommodate these increases, there is the need to consider alternative delivery moves that shift more of the burden for learning onto the students themselves. The amount of training that occurs once individuals have entered the labor force must be increased. This training should serve both school leavers and those who have no exposure to formal schooling, so that individuals can acquire the necessary job related skills and renew these skills during their working lifetime in response to changing market conditions. Again, the expansion of African capacity to produce postgraduate intellectual talent to fill the highest scientific and technical jobs in education establishments, (in government, and in the private sector) is an important matter to be addressed in building for Africa's future.

Government is the central actor in Africa educational system. It finances the lion's share of university subjects, set access policies, appoints key officials, and ensures that standards are maintained through accreditation or other mechanisms. Consequently, the way in which government relates to the higher education sector in caring out these responsibilities will very much condition the possibilities and pace for higher education reform. Thus, greater understanding of Africa education issues is needed to formulate appropriate institutional plans and policy guidance without an adequate information based and the capacity to document educational performance regularly, the state supervision approach will have difficult in operationally defining and tracking critical policy variables for the sector. While these capacities can be established within government ministries or intermediary bodies such as a national council on housing education, there are

advantages to housing them within educational institutes. Specifically, these include greater ease of access to information by all interested parties and the opportunity training programs.

Currently, relatively little analysis of education issuers is carried and institutional planning would certainly be enriched if Africa higher education specialists were able to stimulate a true dialogue by contributing their own analysis.

## 9.0 CONCLUSION

Indeed, African nations have a long history of education and training. Indigenous education among all groups remains an important transmitter of cultural identity from one generation to the next. In the colonial era, missionaries and metropolitan governments opened up a network of western-type schools in Africa. However, the administration of education system was dominated by expatriates, as was the teaching beyond the primary level. Again, access to education was quite limited, especially in the sparsely populated areas of French West Africa. Thus, the education systems inherited by the African nations at the time of independence were thus quite inadequate to meet the needs of the new countries for self governance and rapid economic growth.

From this low starting point, the progress achieved in African education has been spectacular and the quantitative expansion has been particularly impressive. It has substantially improved the human capital stock. Unfortunately, these advances were seriously threatened (in part) by circumstances outside education. Africa's explosive population growth greatly increases the number of children seeking access to schools and increases the number of potential illiterates complicating the problems of stagnating enrollment are the low levels and erosions of educational quality. Cognitive achievement among African students is low by world standards and there is some suggestion of further decline. Here, the supplies of key inputs are critically low and the use of these inputs has declined in relation to the use of teacher's time and of physical facilities. Similarly, the academic achievement in Africa has been sufficiently poor to be a cause for serious concern.

Consequently, hard decisions on education policy should not be postponed. Each African nation should embrace the task of formulating and implementing an internally coherent set of policies that reflects the

nations unique history and aspirations and that effectively addresses its own recently exacerbated problems in the education and training sector. Although the particulars of the policy packages can be expected to vary from one country to the next, every country-specific packages needs to contain, in varying proportions three distinct dimensions: adjustment, revitalization and selective expansion.

Basically, educational development is made up of a series of untidy and overlapping episodes in which a variety of people and organizations with diversified perspectives are actively involved in the processes through which issues are generated, implemented, assessed and redesigned. In order to capture the intricacies of policies and processes, we offered a consolidated model of policy making that places analytical rationality (the process), within the political and administrative aspects of policy making (the actors). The processes fall between two extremes; incremental and synoptic. The incremental process is interactive and approaches problems solving in a step-by-step manner. The synoptic policy making confronts problems as a whole, combining economic, political and social analysis into one integrated planning process that makes interruption unnecessary. The actors are positioned between two modes of policy making: the organizational/bureaucratic (where decisions enervate from an organizational entity such as the government and the military) and the societal/ personality mode (where decisions are the result of negotiation among interest groups, which often have conflicting agendas such as government ministries, teachers unions and parents pressure groups). This static model captures very well the instance of decision making but does not explicitly consider the activities preceding (analysis, generation of options bargaining) and following it (implementation, assessment and possible redesign. A dynamic framework was therefore suggested to cover the pre-policy decision activities, the decision process itself, and the post-

decision activities. Finally, the education policymaking is on iterative and not a linear process. In analyzing it, both the process and the actors must be investigated; as well as the steps preceding and following the decision itself: Policy change should not be introduced lightly, nor should it is abandoned without careful examination.

A1

S/no	COUNTRY	STATUS	POPULATION		
			A Millions 2004	B AVERAGE ANNUAL % GROWTH 2000 -4	C DENSITY PEOPLE PER SQ KM 2004
1.	ALGERIA	NALMI	32.4	1.6	14
2.	ANGOLA	SALI	14.0	3.0	11
3.	BENIN	WALI	6.9	2.6	62
4.	BURKINA FASO	WALI	12.4	2.4	45
5.	BURUNDI	EALI	7.3	1.9	286
6.	CAMEROON	CALI	16.4	2.0	35
7.	CENTRAL AFRICAN	CALI	3.9	1.5	6
8.	CHAD	CALI	8.8	2.9	7
9.	CONGO DEM. REP	CALI	54.8	3.0	24
10.	CONGO,REP.	CALI	3.0	2.8	11
11.	COTE DIVOIRE	WALI	17.1	2.0	54
12.	EGYPT, ARABREP	NALMI	68.7	1.8	69
13.	ERITREA	EALI	4.5	2.2	44
14.	ETHIOPIA	EALI	70.0	2.1	70
15.	WALI GHANA	WALI	21.1	1.8	93
16.	GUINEA CONAKRY	WALI	8.1	2.1	33
17.	KENYA	EALI	32.4	1.9	57
18.	MADAGASCAR	EALI	17..3	2.8	30
19.	MALAWI	EALI	11.2	2.0	119
20.	MALI	EALI	11.9	2.4	10
21.	MAURITANIA	WALI	2.9	2.4	3
22.	MOROCCO	NALMI	30.6	1.6	69
23.	MOZAMBIQUE	EALI	19.1	2.0	24
24.	NAMIBIA	SALMI	2.0	1.8	2
25.	NIGER	WALI	12.1	3.0	10
26.	NIGERIA	WALI	139.8	2.4	154
27.	RWANDA	EALI	8.4	2.2	341
28.	SENEGAL	WALI	10.5	2.3	54
29.	SIERRA LEONE	WALI	5.4	1.9	76
30.	SOUTH AFRICA	SAUMI	45.6	0.9	38
31.	SIDAN	EALI	34.4	2.2	14

Adult Literacy rate % ages 15 and older 1998 -2004	Primary completion rate (%)		Gender parity ratio in Primary and secondary school (%)		Gross domestic Products \$ millions Avg. annual % growth		Net Migration thousands 1995-2000
	1988/89 1993/94	2000/01 2003/04	1990/91	2002/03	2004	2000 - 4	
70	80	96	83	99	84,649	4.8	-185
67	33	-	-	-	20,108	8.1	-120
34	22	51	48	66	4,075	4.5	-29
-	19	29	61	72	4,824	5.2	-129
59	47	31	82	79	657	2.7	-400
68	56	70	83	85	14,733	4.6	0
49	27	-	60	-	1,331	1.4	11
26	19	25	41	59	4,285	14.3	99
65	32	-	-	-	6,571	3.5	-1410
83	54	59	85	87	4,384	3.4	42
48	46	51	66	69	15,285	1.5	150
-	-	91	81	94	75,148	3.5	-500
-	19	40	-	76	925	3.3	-9
42	22	39	68	69	8077	3.7	-77
54	61	62	77	91	8,620	4.8	-51
-	17	41	44	69	3,508	2.9	-227
74	86	73	92	94	15,600	1.5	-21
71	35	47	98	-	4,364	0.9	-3
64	36	71	81	92	1,813	1.8	-50
19	12	40	58	71	4,863	6.3	-284
51	33	43	67	94	1,357	5.3	-10
51	47	75	70	88	50,055	4.5	-300
46	28	52	73	79	5,548	8.5	75
85	77	92	111	104	5,456	3.2	20
14	18	26	56	69	3,081	4.1	-6
67	63	82	78	81	72,106	4.9	-95
64	44	37	96	95	1,845	5.1	-1977
39	45	48	68	87	7,665	4.6	-100
30	-	56	67	70	1,075	15.8	-110
-	81	99	103	100	212,777	3.2	364
59	44	49	77	86	19,559	6.0	-207



A2

32.	TANZANIA	EALT	36.6.	2.0	41
33.	TOGO	WALI	5.0	2.1	91
34.	TUNISIA	NALMI	10.0	1.1	64
35.	UGANDA	EALI	25.9	2.7	132
36.	ZAMBIA	SALI	10.5	1.6	14
37.	ZIBMBABWE	SALI	13.2	1.0	34
38.	GUINEA-BISSAU	WALI	1533	2.9	55
39.	LIBERIA	WALI	3449	2.4	171
40.	CAPE VERDE	WALI	481	2.5	119
41.	LESOTHO	EALI	1809	0.9	60
42.	COMOROS	EALI	614	2.4	276
43.	SOMALIA	EALI	9938	3.3	16
44.	CAUMI GABON	CAUMI	1374	2.2	5
45.	EQUATORIAL GUINEA	CALI	506	2.5	18
46.	SAB TOME AND PRINCIPE	CALI	161	2.0	167
47.	MAURITIUS	SAUMI	1,234	1.0	16,842
48.	DJIBOUTI	SALMI	716	1.8	31
49.	SEYCHEUES	SAUMI	85	1.1	188
50.	SWAZILAAND	SALMI	1120	1.7	65
51.	LIBYA	NAUMI	5674	2.0	3
52.	GAMBIA	WALI	1,449	2.5	1145
53.	BOTSWANA	SALMI	1,727	0.8	3
54.	ZAIRE	SALI	--	--	--
55.	WORLD	GLOBAL	6345.1	1.2	49

69	46	58	96	-	10851	6.8	-206
53	40	78	59	-	2,061	2.6	128
74	75	101	86	102	28,185	4.3	135
35	-	63	77	96	6,833	5.8	-66
68	-	69	-	91	5,389	4.4	86
90	96	81	96	95	17,750	7.0	-125
-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-
76	-	-	-	-	-	-	-
81	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
84	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
84	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
92	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-
82	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
82	-	-	87	95	40,887,837	2.5	-

**POPULATION:** - is based on the de facts definition, which counts all resident, of legal status or citizenship, except for refugees not permanently, settled in the country of Asylum, are generally considered part of the population of the Country of origin.

**AVERAGE ANNUAL POPULATION GROWTH RATE:** is the exponentials rate of charge for the period.

**POPULATION DENSITY:** is the mid year population divided by land area. The land area is a country's total area excluding areas under in land bodies of water and coastal waterways while density is calculated using the most recently available data on land area.

**ADULT LITERACY RATE:** Is the percentage of persons aged 15 and above who can, with understanding, read and a short, simple statement their everyday life.

**PRIMARY COMPLETION RATE:** Is the percentage of students completing the last year of primary school. It is calculated by taking the total number of students in the last grade of primary school, minus the number of repeaters in that grade, divided by the total number of children of official graduation age, the primary completion rate reflects the primary cycle as defined by the international standard classification of Education (ISCED).

**GENDER PARTY RATIO IN PRIMARY AND SECONDARY SCHOOL:** the ratio of female gross enrollment rate in primary and secondary school to the gross enrollment rate of males. Eliminating gender disparities in education would to increase the status and capabilities of women.

**GROSS DOMESTIC PRODUCT:** is the gross value added at purchasers' prices, by all resident producers in the economy plus any taxes and minus any subsidies not included in the value of the products. It was calculated without deducting for

depreciation of fabricated assets or for depletion or degradation of natural resources. Value added is the net output of an industry after adding up all outputs and subtracting intermediate inputs. Here, the industrial origin of value added is determined by the international standard industrial classification (ISIC). The U. S. dollar is used and it applies the average official exchange rate reported by the IMF for the year shown.

**GROSS DOMESTIC PRODUCT AVERAGE ANNUAL GROWTH RATE:** is calculated from constant price GDP data in local currency.

**NET MIGRATION:** is the total number of migrants during the period, that is, the number of immigrants less the number of emigrants, including both citizens and non-citizens.

B1

	COUNTRY	STATUS	ADULT LITERACY RATE 90 AGES 15 AND ABOVE 2002	COMBINED GROSS ENROLMENT RATIO FOR PRIMARY, SECONDARY/TERTIARY
1.	SEYCHLLES	SAUMI	91.9	856
2.	TUNISIA	NALMI	73.2	75
3.	CAPEVERDE	WALI	75.7	73
4.	ALGERIA	NALMI	68.9	70
5.	EQUATORIAL GUINEA	CALI	84.2	58
6.	SOUTH AFRICA	SAUMI	86.9	77
7.	EGYPT	NALMI	55.6	76
8.	GABON	CAUMI	71.0	74
9.	SAOTOME AND PRINCIPE	CALI	83.1	62
10.	MOROCCO	NAUMI	50.7	57
11.	NAMIBIA	SALMI	83.3	71
12.	BOTSWANA	SALMI	78.9	70
13.	GHANA	WALI	73.8	46
14.	COMOROS	EALI	56.2	45
15.	SWAZILAND	SAUMI	80.9	61
16.	CAMEROON	CALI	67.9	56
17.	TOGO	WALI	59.6	67
18.	CONGO(Rep)	CALI	82.9	48
19.	LESOTHO	EALI	81.4	65
20.	UGANDA	EALI	68.9	71
21.	ZIMBABWE	SALI	90.0	58
22.	KENYA	EALI	84.3	53
23.	MADAGSCAR	EALI	67.3	45
24.	NIGERIA	WALI	66.8	45
25.	MAURITANIA	WALI	41.2	44
26.	DJIBOUN	SALMI	65.7	24
27.	GAMBIS	WALI	37.8	45
28.	ERITREA	EALI	56.7	33
29.	SENEGAL	WALI	39.3	38
30.	RWANDA	EALI	69.2	53
31.	GUINEA (CONAKY)	WALI	41.0	29

EDUCATION INDEX	ADULT ILLITERACY RATE (% AGES 15 AND ABOVE) 2002	PUBLIC EXPENDITURE ON EDUCATION			
		As % OF GDP		AS % OF TOTAL GOVT. EXP	
		1990 (A)	1999-2001 (B)	1990 (C)	1999-2001 (D)
0.90	8.1	7.8	7.5	14.8	-
0.74	26.8	6.0	6.8	13.5	17.4
0.75	24.3	-	-	-	-
0.69	31.1	553	-	21.1	-
0.76	15.8	-	0.5	-	1.6
0.83	14.0	6.2	5.7	-	-
0.62	44.4	3.7	-	-	-
0.72	-	-	3.9	-	-
0.76	-	-	-	-	-
0.53	49.3	5.3	5.1	26.1	-
0.79	16.7	7.7	7.9	-	-
0.76	38.7	6.7	2.1	17.0	25.6
0.65	26.2	3.2	4.1	24.3	-
0.53	43.8	-	-	-	-
0.74	19.1	5.7	5.5	19.5	-
0.64	32.1	3.2	5.4	19.6	22.1
0.62	40.4	5.5	4.5	26.4	23.2
0.71	17.2	5.0	3.2	14.4	12.6
0.76	18.6	6.1	10.0	12.2	18.4
0.70	31.1	1.5	2.5	11.5	-
0.79	10.0	-	10.4	-	-
0.74	15.7	6.7	6.2	17.0	22.3
0.60	32.7	2.1	2.5	-	-
0.59	33.2	0.9	-	-	-
0.42	58.8	-	3.6	-	-
0.52	34.5	-	-	10.5	-
0.40	62.2	3.8	2.7	14.6	14.2
0.49	43.3	-	2.7	-	-
0.39	60.7	3.9	3.2	26.9	-
0.64	30.8	-	2.8	-	-
0.37	60.2	-	1.9	-	25.6

32.	BENIN	WALI	39.8	52
33.	TANZANA	EALI	77.1	31
34.	COTE D'IVOIRE	WALI	49.7	42
35.	ZAMBIA	SALI	79.9	45
36.	MALAWI	EALI	61.8	74
37.	ANGOLA	SALI	42.0	30
38.	CHAD	CALI	45.8	35
39.	CONGO, DEM. REP.	CALI	62.7	27
40.	CENTRAL AFRICAN REPUBLIC	CALI	48.6	31
41.	ETHIOPIA	EALI	41.5	34
42.	MOZAMBIQUE	EALI	46.5	41
43.	GUINEA BISSAU	WALI	39.6	37
44.	BURUNDI	EALI	50.4	33
45.	MALI	WALI	19.0	26
46.	BURKINA FASO	WALI	12.8	22
47.	NIGER	WALI	17.1	19
48.	SIERRA LEONE	WALI	36.0	45
49.	LIBERIA	WALI	-	-
50.	COMOROS	EALI	-	-
51.	SOMAUUA	EALI	-	-
52.	SUDA	EALI	-	-
53.	MAURITIUS	SAUMI	-	-
54.	ZAIRE	SALI	-	-
55.	WORLD	Global	-	64

0.44	60.2	-	3.3	-	-
0.62	22.9	3.2	-	11.4	-
0.47	50.3	-	4.6	-	21.5
0.68	20.1	2.4	1.9	8.7	-
0.66	38.2	3.3	4.1	11.1	-
0.38	-	3.9	2.8	10.7	-
0.42	54.2	-	2.0	-	-
0.51	37.3	-	-	-	-
0.43	51.4	2.2	-	-	-
0.39	58.5	3.4	4.8	9.4	13.8
0.45	53.5	3.9	2.4	12.0	-
0.39	60.4	-	2.1	-	4.8
0.45	49.6	3.4	3.6	16.7	20.7
0.21	81.0	-	2.8	-	-
0.16	87.2	2.7	-	-	-
0.18	82.9	3.2	2.3	18.6	-
0.39	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0.76					



PUBLIC EXPENDITURE ON EDUCATION (% OF ALL LEVELS)						
	PRE-PRIMARY/SECONDARY (A)		SECONDARY (B)		TERTIARY (C)	
	1990	1999-2001	1990	1999-2001	1990	1999-2001
1.	28.2	-	40.7	-	9.5	-
2.	39.8	33.3	36.4	45.0	18.5	21.7
3.	-	-	-	-	-	-
4.	-	-	-	-	-	-
5.	-	39.1	-	30.7	-	30.1
6.	75.6	47.2	-	31.3	21.5	14.5
7.	-	-	-	-	-	-
8.	-	35.6	-	38.9	-	25.5
9.	-	-	-	-	-	-
10.	34.8	48.0	48.9	51.5	16.2	0.3
11.	-	59.0	-	27.2	-	12.0-
12.	-	53.2	-	23.8	-	18.6
13.	29.2	-	34.3	-	11.0	-
14.	42.4	-	28.2	-	17.3	-
15.	31.2	37.7	24.5	31.1	26.0	22.4
16.	70.5	-	-	-	29.5	-
17.	30.4	48.6	25.8	29.3	29	17.4
18.	-	32.7	-	27.3	-	32.6
19.	-	49.3	-	27.7	-	16.7
20.	-	-	-	-	-	-
21.	54.1	-	28.6	-	12.3	-
22.	50.3	-	18.8	-	21.6	-
23.	49.1	48.0	35.6	33.0	-	11.9
24.	-	-	-	-	-	-
25.	33.3	54.5	37.7	31.4	24.9	14.1
26.	53.1	-	19.0	-	9.1	-
27.	41.6	-	21.2	-	17.8	-
28.	-	45.8	-	10.0	-	-
29.	43.9	-	25.7	-	24.0	-
30.	-	48.7	-	16.7	-	34.7
31.	-	-	-	-	-	-

ADULT LITERACY RATE (% AGES 15 AND ABOVE)		YOUTH LITERACY RATE (% AGES 15-24)		NET PRIMARY ENROLLMENT RATIO (%)	
A		B		C	
<i>1990</i>	<i>2002</i>	<i>1990</i>	<i>2002</i>	<i>1990/91</i>	<i>2001/02</i>
-	91.9	-	99.1	-	106
59.1	73.2	84.1	94.3	94	97
63.8	75.7	81.5	89.1	94	101
52.9	68.9	77.3	89.9	93	95
73.3	-	92.7	-	91	85
81.2	86.0	88.5	91.8	88	90
47.1	55.6	61.3	73.2	84	90
-	-	-	-	86	78
-	-	-	-	-	98
38.7	50.7	55.3	69.5	57	88
74.9	83.3	87.4	92.3	83	78
68.1	78.9	83.3	89.1	85	81
58.5	73.8	81.8	92.2	52	60
53.8	56.2	56.7	59.0	57	55
71.4	80.9	85.1	91.2	77	77
57.9	67.9	81.1	-	74	-
44.2	59.6	63.5	77.4	75	95
67.1	82.8	92.5	97.8	79	-
78.0	81.4	87.2	-	73	84
56.1	68.9	70.1	80.2	53	-
80.7	90.0	93.9	97.6	86	83
70.8	84.3	89.8	95.8	74	70
58.0	-	72.2	-	65	69
48.7	66.8	73.6	88.6	60	-
34.8	41.2	45.8	49.6	35	67
53.0	-	73.2	-	31	34
25.6	-	42.2	-	48	73
46.4	-	60.9	-	16	43
28.4	39.3	40.1	52.9	47	58
53.3	69.2	72.7	84.9	67	84
-	-	-	-	25	61

32.	-	57.4	-	25.5	-	16.4
33.	-	-	-	-	-	-
34.	-	42.4	-	32.5	-	25.1
35.	-	-	-	-	-	-
36.	44.7	-	13.1	-	20.2	-
37.	96.3	-	-	-	3.7	-
38.	-	-	-	25.9	-	16.6
39.	-	-	-	-	-	-
40.	-	-	-	-	-	-
41.	53.9	-	28.1	-	12.1	-
42.	49.8	-	15.7	-	9.9	-
43.	-	-	-	-	-	-
44.	46.8	38.0	29.1	35.0	22.0	26.9
45.	-	45.7	-	39.7	-	14.6
46.	-	-	-	-	-	-
47.	-	49.2	-	24.5	-	16.2
48.	-	-	-	-	-	-
49.	-	-	-	-	-	-
50.	-	-	-	-	-	-
51.	-	-	-	-	-	-
52.	-	-	-	-	-	-
53.	-	-	-	-	-	-
54.	-	-	-	-	-	-
55.	-	-	-	-	-	-

26.4	39.8	40.4	55.5	45	71
62.9	77.1	83.1	91.6	50	54
38.5	-	52.6	59.9	46	63
68.2	79.9	81.2	89.2	79	66
51.8	61.8	63.2	72.5	50	81
-	-	-	-	58	30
27.7	45.8	48.0	69.9	36	58
47.5	-	68.9	-	54	35
33.2	48.6	52.1	58.5	53	-
28.6	41.5	43.0	57.4	23	46
33.5	46.5	48.8	62.8	45	60
27.2	-	44.1	-	38	45
37.0	50.4	51.6	66.1	53	53
18.8	19.0	27.6	24.2	20	38
16.3	12.8	24.9	19.4	26	35
1.4	17.1	17.0	24.5	24	34
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-

B3

	Net secondary enrolment ratio (%)		Children reaching grade 5 (& of grade 1 students)		Tertiary students in science Math & engineering (& of tertiary students) 1994-97
	1990/91	2001/02	1990/91	2000/01	
1.	-	98	-	91	-
2.	-	68	87	95	27
3.	-	63	-	93	-
4.	54	62	95	96	50
5.	-	26	-	35	-
6.	-	62	75	65	18
7.	-	81	-	99	15
8.	-	-	-	100	-
9.	-	-	-	61	-
10.	-	31	75	84	29
11.	-	38	-	94	4
12.	29	55	97	89	24
13.	-	32	80	-	-
14.	-	-	-	-	-
15.	-	32	76	74	22
16.	-	-	-	81	-
17.	18	27	51	84	11
18.	-	-	63	-	-
19.	-	22	71	67	13
20.	-	14	-	-	15
21.	-	40	-	-	23
22.	-	24	-	-	-
23.	-	11	22	34	20
24.	-	-	-	-	-
25.	-	15	75	55	-
26.	-	17	87	86	-
27.	-	28	-	70	-
28.	-	21	-	-	-
29.	-	-	85	68	-
30.	7	-	60	40	-
31.	-	12	59	84	42

Research and development expenditures (% of GDP) 1996-2002	RESEARCHERS IN R&D (PERMILLION PEOPLE) 1990-2001	Public expenditure on education (& of GDP)	
<i>1996-2002</i>	<i>1990-2001</i>	<i>1990</i>	<i>1999-2001</i>
-	-	7.8	7.5
0.5	336	6.0	6.8
-	-	-	-
-	-	5.3	-
-	992	6.2	5.7
0.2	493	3.7	-
-	-	-	3.9
-	-	-	-
-	-	5.3	5.1
-	-	7.6	7.9
-	-	6.7	2.1
-	-	3.2	4.1
-	-	-	-
-	-	5.7	5.5
-	3	3.2	5.4
-	102	5.5	4.8
-	33	5.0	3.2
-	-	6.1	10.0
0.8	24	1.5	2.5
-	-	-	10.4
-	-	6.7	6.2
0.1	15	2.1	2.5
-	15	0.9	-
-	-	-	3.6
-	-	-	-
-	-	3.8	2.7
-	-	-	3.7
0.0	2	3.9	3.2
-	30	-	2.8
-	-	-	1.9

32.	-	20	55	84	18
33.	-	-	79	78	39
34.	-	-	73	69	-
35.	-	20	-	77	-
36.	-	29	64	54	-
37.	-	-	-	-	-
38.	-	8	53	45	14
39.	-	12	55	-	-
40.	-	24	-	-	-
41.	-	15	-	61	36
42.	-	11	33	52	46
43.	-	-	-	38	-
44.	-	8	62	64	-
45.	5	-	73	84	-
46.	-	8	70	64	19
47.	6	5	62	71	-
48.	-	-	-	-	-
49.	-	-	-	-	-
50.	-	-	-	-	-
51.	-	-	-	-	-
52.	-	-	-	-	-
53.	-	-	-	-	-
54.	-	-	-	-	-
55.	-	-	-	-	-

-	174	-	3.3
-	-	3.2	-
-	-	-	4.6
-	-	2.4	1.9
-	-	3.3	4.1
-	-	3.9	4.8
-	-	-	2.0
-	-	-	-
-	47	2.2	-
-	-	3.4	4.8
-	-	3.9	2.4
-	-	-	2.1
-	21	3.4	3.6
-	-	-	2.8
0.2	16	2.7	-
-	-	3.2	2.3
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
2.5	1,096	-	-



B4

	GENDER-RELATED DEVELOPMENT INDEX (GDI)		ADULT LITERACY RATE (% AGES 15 AND ABOVE) 2002		COMBINED GROSS ENROLMENT RATIO FOR PRIMARY, SECONDARY AND TERTIARY (%) 2001/2002	
	RANK	VALUE	FEMALE	MALE	FEMALE	MALE
56.	-	-	92.3	91.4	86	85
57.	77	0.734	63.1	83.1	75	74
58.	83	0.709	68.0	85.4	72	73
59.	89	0.688	59.6	78.0	69	72
60.	86	0.691	76.0	92.8	52	64
61.	96	0.661	85.3	86.7	77	78
62.	99	0.634	43.6	67.2	72	80
63.	-	-	-	-	70	74
64.	-	-	-	-	59	64
65.	100	0.604	38.3	63.3	52	61
66.	101	0.602	82.8	83.8	72	70
67.	102	0.581	81.5	76.1	71	70
68.	104	0.564	65.9	81.9	43	50
69.	108	0.510	49.1	63.5	41	50
70.	109	0.505	80.0	82.0	59	62
71.	111	0.491	59.8	77.0	51	61
72.	119	0.477	45.4	74.3	55	78
73.	112	0.488	77.1	88.9	44	52
74.	117	0.483	90.3	73.7	66	64
75.	113	0.487	59.2	78.8	68	73
76.	118	0.482	86.3	93.8	57	60
77.	114	0.486	78.5	90.0	52	54
78.	121	0.462	60.6	74.2	44	46
79.	122	0.458	59.4	74.4	41	49
80.	124	0.456	31.3	51.5	42	46
81.	-	-	55.5	76.1	-	-
82.	125	0.446	30.9	45.0	41	49
83.	127	0.431	45.6	68.2	28	39
84.	128	0.429	29.7	49.0	35	41
85.	129	0.423	63.4	75.3	50	56
86.	-	-	-	-	21	37

ADULT LITERACY FEMALE RATE % AGES 15 AND ABOVE	LITERACY FEMALE RATE (% AGES 15-24)	NET PRIMARY ENROLMENT. FEMALE RATIO (%)	NET PRIMARY ENROLMENT. FEMALE RATIO (%)	GROSS TERTIARY ENROLMENT FEMALE (%)
<b>2002</b>	<b>2002</b>	<b>2000/01</b>	<b>2000/01</b>	<b>2000/01</b>
92.3	99.4	106	101	-
63.1	90.6	97	69	21
68.0	86.3	100	54	3
59.6	85.6	94	64	-
-	-	78	19	2
85.3	91.7	90	65	16
43.6	66.9	88	79	-
-	-	78	-	5
-	-	96	-	1
38.3	61.3	85	28	9
82.8	94	81	44	7
81.5	92.4	83	59	4
65.9	90.1	59	30	2
49.1	52.2	50	-	1
80.0	92.1	77	35	1
59.8	-	-	-	4
45.4	66.6	86	17	1
90.3	-	88	27	3
59.2	74.0	-	13	2
86.3	96.2	83	38	3
78.5	95.1	71	24	2
-	-	69	12	2
59.4	86.5	-	-	-
31.3	41.8	65	13	1
-	-	30	13	1
-	-	70	24	-
--	-	39	18	-
29.7	44.5	54	-	-
63.4	83.6	85	-	-
-	-	54	7	-

87.	130	0.406	25.2	54.8	41	64
88.	131	0.401	69.2	85.2	31	32
89.	132	0.379	38.4	60.3	34	50
90.	133	0.375	73.8	86.3	43	47
91.	134	0.374	48.7	75.5	71	77
92.	-	-	-	-	-	-
93.	135	0.368	37.5	54.5	25	44
94.	136	0.355	51.8	74.2	24	30
95.	138	0.345	33.5	64.7	24	38
96.	137	0.346	33.8	49.2	28	41
97.	139	0.339	31.4	62.3	35	46
98.	141	0.329	24.7	55.2	29	45
99.	140	0.337	43.6	57.7	29	38
100.	142	0.309	11.9	26.7	21	31
101.	143	0.291	8.1	18.5	18	26
102.	144	0.278	9.3	25.1	16	23
103.	-	-	-	-	38	52
104.	-	-	-	-	-	-
105.	-	-	-	-	-	-
106.	-	-	-	-	-	-
107.	-	-	-	-	-	-
108.	-	-	-	-	-	-
109.	-	-	-	-	-	-
110.	-	-	-	-	-	-
111.						

25.5	38.5	58	13	1
69.2	89.4	54	--	0
--	51.5	53	--	4
73.8	86.9	66	18	2
48.7	62.8	81	26	--
--	--	28	--	1
	64.0	47	4	0
37.5	--	34	9	--
--	46.9	--	--	--
33.5	51.8	41	11	1
33.8	49.2	56	9	0
31.4	--	38	--	--
--	65.1	48	7	1
43.6	16.9	32	--	--
11.9	14.0	29	6	1
8.1	15.1	28	4	1
9.3	--	--	--	1
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**NOTE:**

**EDUCATION INDEX:** This measures a country's relative achievement in both adult literacy and combined primary secondary and tertiary gross enrolment.

**GENDER EMPOWERMENT MEASURE (GEM):** A Composite index measuring gender in equality in three basic dimensions of empowerment-economic participations and decision-making, political participation and decision-making and power over economic resources.

**GENDER-RELATED DEVELOPMENT INDEX (GDI):** A composite index measuring average achievement in the three basic dimension captured in the human development index (a long and healthy life knowledge and a decent standard of living) adjusted to amount for inequalities between men and women

**LITERACY RATE ADULT:** The percentage of people ages 15 and above who can with understanding, both read and write a short, simple statement related to their everyday life.

**RESEARCH AND DEVELOPMENT EXPENDITURE:** current and capital expenditures (including overhead on creative systematic activity intended to increase the stock of knowledge. Included here, are fundamental and applied research and experimental development work leading to new devices, products or processes.

**RESEARCHERS IN R & D:** People trained to work in any field of sciences who are engaged in professional research and development (RXD) activity. Most such jobs require the completion of tertiary education.

## **SCIENCE**

The share of tertiary students enrolled in natural science, engineering, mathematics and computer sciences, architecture and town planning, transport and communications, trade, craft and industrial programmers, and agriculture, forestry and fisheries.

## REFERENCES

- (1) Association of African universities (1988) Directory of African Universities, Accra: Association of African Universities
- (2) Association of African universities (1991) Study on cost effectiveness and Efficiency in African universities, Accra: Association of African universities.
- (3) Briggs, T. et al (1995) Technological capabilities and learning in African Enterprises, Washington world bank
- (4) Economic commission for Africa (1989) "Higher Education and the future of Africa in the 21<sup>st</sup> century: The role of the institutions of higher learning in responding to Africa's Development Needs and priorities" Discovery and innovation 1(2): 225-32.
- (5) Eisemon, T and C.H. Davis (1991) "University research and the Development of scientific capacity in sub-Saharan Africa and Asia" in P.G. Altbach, (ed) International Higher education: An Encyclopedia, New York: Garland publishing, Inc.
- (6) Fine, J.C (1991) "Graduate Training in Economics and reform of African Higher Education" Paper presented at a meeting the D AE working Group on higher Education, Dakar, Senegal.
- (7) Goma, L.K.H (1989): "The Crisis in Higher Education in Africa" Discovery and innovation 1(2); 19-25.
- (8) Haddad, W.D. (1994) The Dynamics of Education policymaking, Washington: World Bank.
- (9) Hayman, J (1992)" Building informatics capacity in African Universities through a network of research and Development centers" Higher Education Policy 5 (1); 54-
- (10) Kellaghan, T. and V.Greaney (1992) Using Examinations to improve Education; A study in fourteen Africa countries, Washington; World Bank.
11. Levey, I. A. (1991) Computer and CD-ROM capability in sub- Saharan African university and research libraries, Worship; American Association For The Advancement of science.

12. Mansell, R. and U. When (1998) (ed) Knowledge societies; information technology for sustainable development, Oxford; oxford university press.
  - a. Nwaobi, G.C. (1999) "Information Technology in Africa: structure and diffusion) paper presented at he Twelfth world congress of the international Economic association Buenes, Aires, Argentina (August 23-27, 1999)
  - b. Nwaobi, G. C. (2000) The knowledge Economics: Trends and perspectives, Lagos: Quarterb/Goan Communication press.
  - c. Odaga, A and W. heneveld (1995) Girls and schools in sub-Saharan Africa, Washington: world bank
13. Ridker, R.G. (1994) The World Bank's role in human resource development in sub-Sahara African: Education, Training and Technical Assistance, Washington. World bank
14. Ruijter, C.T.A and J.H.P van weeren (1989) "computer Assisted learning in higher Education in Development countries" in Hans Oosthoek and Ton vroeijenstjn (eds) Higher education and new Technologies. New York: paragon press
15. Saint, W.S. (1992) Universities in Africa: strategies for stabilization and Revitalization, Washington: world book
- 16 UNCSID (1998) Knowledge societies: information Technology for sustainable Development Oxford: Oxford University press
  - a. UNDP (2003) Human Development report New York UNDP
17. UNESCO (1963) The Development of Higher Education in Africa, Paris: UNESCO
18. UNESCO (1964) Outline of a plan for scientific research and Training in Africa, Paris: UNESCO
19. World Bank (1988) Education in sub-Saharan Africa policies for Adjustment, revitalization and Expansion Washington: World Bank.
20. World Bank (1998a) World Development Report (Knowledge for Development), Washington: World Bank.
21. World Bank (1998b) Hard Lesson: Primary Schools, Community and Social Capital in Nigeria Washington: World Bank



22. World Bank (1999) World Development Report (Entering the century),  
Oxford: World Bank.
23. World Bank (2006) World Development Report (Equity and Development),  
Oxford: World Bank.
24. World Bank, (1995) (Workers in an Integrating World) World  
Development Report, and oxford: World Bank.