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"The Challenge of Education in the Socio-Economic Development of the African Region"

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1. Introduction

1.1 During the last two decades, the attainment of political independence by many African countries saw the emergence of new permicious problems for the region. First, there was the urgent need to meet the demands and fulfil the promises made during the pre-independence period: to improve the standard of living of the people and to diversify the economy. Second was the need to re-orient the inherited constitutions and administrative machineries which were primarily designed to establish a framework of law and order and helping the agents of production and distribution for the respective metropolitan countries to organize direct economic activities to their interest. Third, there was the need to review the inherited theories of development and economic growth which linked the rate and direction of internal socio-economic change with export markets using imports of skills, technology, and capital goods and services. Fourth, was the urgent need to prepare for dealing with the expected exodus of key expatriate personnel even without enforced localization, and the desire to step up the rate of growth and development of the economies. All these called for rapid re-orientation and expansion of the educational systems to cater for the urgently needed trained/skilled manpower by African economies.

1.2 There was evidence that Africa faced an education gap in comparison with other developing regions of Asia and Latin America. This education gap prohibited optimal utilization of available resources and hampered socio-economic development. During the sixties, therefore, human resources development came to the foreground in the discussions about the problem of development and centered mainly on the "formal" educational component. During the same period, two documents had a great impact on the development of education in Africa viz: the conference of African States on the development of education in Africa, 1961[1]; and the Conference on the Development of Higher Education in Africa, 1962[2]. The Addis Ababa Plan spelt out the long-term targets for the African region for the period 1961-1980 as follows:

(a) primary education to cover broadly six years would be universal, compulsory and free;

(b) education at the second level would be provided to 30% of the children who completed primary school;

(c) higher education would be provided, mostly in Africa itself to 20% of those who completed secondary education;

(d) the improvement of the quality of African schools and universities would be a constant aim; and

(e) the percentage of national incomes earmarked for financing education would be increased from 3% in 1961 to 4% in 1965 and to 5% in 1980.

1/ UNESCO/ECA, The Addis Ababa Plan, Final Report, Addis Ababa, 1961

2/ UNESCO, Tananarive Plan, Final Report, Tananarive, 1963

1.3 At the Tananarive Conference the targets for higher education were increased further from what had been stated in Addis Ababa, thus:

Table 1: The targets of the Addis Ababa and Tananarive Conferences for Higher Education in Middle Africa

	1961	1965	1970	1975	1980
Tananarive Plan					
Enrolments (1000)	-	46	80	144	274
As % of relevant age group	-	0.35	0.55	0.89	1.51
Addis Ababa Plan					
Enrolment as % of relevant age group	0.2	0.2	0.4	1.2	2.0

1.4 Yet even with these Tananarive targets, there had been overfulfilment in the field of higher education by 1965 as shown in Table 2 below:

Table 2: Development of enrolment in Higher Education in Middle Africa

Enrolments	1960	1965	Increase %
Actual	27,200	68,080	150
Target	27,200	52,000	91

Source: ECA Manpower Development Section

1.5 Also in educational finance a number of African countries had surpassed the target of the Addis Ababa Conference to devote 5.8% of gross national product to education in 1965. If one considered only monetary income, the percentage had actually surpassed 10% in some countries.

1.6 This despite the impressive programme of expansions, the "re-orientation" efforts have not been as impressive: there has been, and still is, a growing dissatisfaction with the re-orientation efforts made so far. The dissatisfaction arises from the awareness that educational offerings appear, in many African States, to have missed the aspirations and goals of both society and State; and from the realization that the kind of education offered failed to solve developmental problems and instead created new embarrassing ones, such as the school leavers problem and unemployed university graduates both of whom lack vocational orientation.

1.7 Certainly for the majority of the African population, the educational facilities and programmes provided did not match up to their expectations - both in catering for increased demand educational opportunities, and curriculum relevant; and thus became a matter for concern. This concern was echoed by

the Heads of States meeting in Addis Ababa in 1973 when they reiterated their conviction that the mobilization of human resources needed a fresh thrust so as to stimulate and guide the creative imagination of Africans and accelerate the process of transformation of African economies thereby improving the living conditions of the people. It was necessary therefore, to guarantee to every individual the right to education and to training within the context of African realities, by providing an education and training adapted to the needs and development goals of the African region[1/].

1.8 The translation of these broad national aspirations into actual achievements has raised a number of questions such as: the relevance of education; accessibility to education by the rapidly growing population, what is meant by meaningful and productive education; the balance between general education and technical education; the complementarity of formal and non-formal education; the utilization of resources in education; educational policies, reforms and innovations, and so on. In attempting to answer these questions, critical policy issues have come into focus and hence the need for the formulation of strategies in the development of human resources as spelt out in the Lagos Plan of Action.

2. The Challenge of Education through the Lagos Plan

2.1 In 1979 the Monrovia Declaration was formulated as an international development strategy for the African region within the framework of the United Nations Third Development Decade. The Monrovia Declaration was followed by a proclamation, at the Extra-ordinary Meeting of the Heads of States and Governments in Lagos, 1980, of a programme of action for the implementation of the strategy.

2.2 Neither the criticisms made or the objections raised to the First and Second United Nations Development Decades, nor the formulation of the Monrovia Strategy contained much that was new or different from earlier pronouncements. But what was new about the Extraordinary Meeting of the OAU Heads of State in Lagos in April, 1980 at which Plan of Action was proclaimed for the African region was:

(a) the change of atmosphere within Africa and among African leaders;

(b) the seriousness with which the issues were taken by African leaders;

(c) the urgency of the proposed actions; and

(d) the sacrifices and concessions Africa had to make in order to develop socially, politically and economically.

1/ OAU: Heads of States and Governments f the OAU

2.3 Furthermore, what was important about the Lagos Meeting was:

(a) the realization that it was pointless in being theological and dogmatic about the development process based on past history, social and political influences of metropolitan countries;

(b) despite professed political and ideological differences amongst African leaders, they did not hesitate changing horses in midstream in response to the changing economic and political conditions of the African region;

(c) the realization that a lack of the political and social factors influencing the development process has often resulted into meaningless debates on the virtues of rival ideologies and high-handed pontification on the course developing countries ought to take or follow; and

(d) that a major challenge for Africa was the ability to ride simultaneously the horses of economic efficiency and political expediency. There was no question of sacrificing one for the other - the two had to be ridden simultaneously.

2.4 With the foregoing in mind, priority objectives for the development of the African region were spelt out as follows:

(i) the attainment of regional self-sufficiency in food;

(ii) the establishment of sound industrial base with special reference to requisite national, industrial and technological policies, capabilities and institutional infrastructure;

(iii) physical integration of the region through the development of transport and communication at both national, multinational and regional levels;

(iv) the development of capabilities - national, regional and multinational - to enable African States gain sovereignity over their natural resources;

(v) the establishment of mutually and equitable relations between African countries;

(vi) the attainment of subregional increase in the share of Intra-African Trade[1/].

1/ United Nations and the Organization of African Unity on the Development Strategy for the African Region in the International Development Strategy for the United Nations Third Development Decade, E/CN.14/IF/107, 1979

2.5 What then can education do to ensure that the proclaimed priority objectives are fulfilled? Ideally, it might be necessary to take action in two directions through internal reforms and through search for innovative forms of education.

2.6 These educational reforms and innovations should take into consideration the following:

(a) the desire to bring education closer to the needs and life of the community and fulfil individual aspirations more effectively;

(b) the determination to integrate educational establishments, especially those of higher learning, into the community and define the role industry, business and higher learning institutions should play in the development of technical, managerial, technological, entrepreneurial, and financial skills and capabilities for workers, technicians and other personnel and cadres;

(c) educational projects to create tighter bonds between local communities and primary education, and the establishment of closer relations between industry, research institutions and universities;

(d) restructuring educational systems so as break dependence on and imitation of the metropolitan countries both in terms of curricula and practices, laying more emphasis on productive education, use of local resources and instructional materials;

(e) elimination of the complex causes of school wastage and formulate strategies and programmes to rehabilitate failures and school leavers for gainful and productive employment;

(f) the harmonious development of all elements in the educational process - knowledge, skills and attitudes as well as considerations of emotional and personality problems and cultural development so as to produce a whole man who is creative and imaginative;

(g) the introduction of sciences of life into all kinds of education and the inclusion of basic appropriate technology courses into primary and secondary school curricula and adult education programme;

(h) effective utilization of human resources, residential and instructional facilities to cater for increased intake and the enhanced democratization of education;

(i) production of textbooks and the improvement of instructional materials;

(j) complementing formal education with non-formal education so that individuals learn while working, and work while learning;

(k) altering the balance between general education and technical-vocational education in favour of the latter;

(l) introduction of polyvalent education with emphasis on scientific natural and social sciences and technological disciplines; and greater co-operation and collaboration between the world of work and the world of learning, and between industries and institutions of higher learning. Such polyvalent education at all levels should be able to equip individuals with knowledge, skills and attitudes so as to be able to fund for themselves, be self-reliant and be able to explore and exploit the vast mineral and natural resources of the region; and to

(m) paying greater attention to the use of the mother tongue and the increasing use of mass media for educational purposes;

(n) recognising the existence of individual differences in physical and mental abilities and intensifying efforts to cater for those with mental and physical disabilities.

2.7 The foregoing educational reform indicators call for the establishment and implementation of programme of large scale development of human resources. Such programmes, however, should take noteof the high rate of population growth, the growing level of unemployment and under-employment, the shortage of different types and levels of trained manpower, the high level of adult illiteracy, the deficiencies in educational system and the lack of co-ordinated policies and programmes of manpower training, and the funding of training at both national and regional levels. Account should also be taken of the need to strengthen existing regional and subregional institutions for co-operation and collaboration in human resource development in an attempt to become self-sufficient and self-reliant; and where necessary the creation of new institutions should be speedied. Account should also be given to the need for gearing the development of science and technology to the changing circumstances and economic conditions of the African region.

2.8 Do current educational systems and practices in Africa render themselves amenable to these articulated strategies and reforms? How good are schools and colleges in imparting the kind of knowledge needed by society and type of skills required for the exploration and exploitation of natural resources and receptive attitudes for worth, self-reliance and self-fulfilment? What methodologies, techniques and instructional materials are schools and colleges using in imparting the required knowledge and skills? Where, how and by whom are such moral qualities as co-operation, perseverance, abilities for creativity, production of goods and services, creative work attitudes and self-reliance and self-sufficiency to be attained and nurtured? It is with these questions in mind that an analysis is being made in the next section about the present status of educational systems in Africa before a prescription can be made in the subsequent section.

3. Current Educational Trends and Problems in the African Region

3.1 In examining the development of education in Africa, four areas have been identified and separated for convenience of this analysis. The areas are inter-related viz:

(1) The relevance of education to socio-cultural and economic needs and attainment of individual aspirations and of society:

(2) Extending educational opportunities to all, irrespective of their geographical location, mental, physical and intellectual state:

(3) Diversity and co-ordination of education;

(4) Optimal utilization of financial and human resources and instructional facilities.

(1) Relevance of Education

3.2 To begin with, education process must inform, instruct, motivate and nurture the individual's knowledge, skills and attitudes so that the recipient can derive from life the best out of it and make a contribution to it. In recent years however, the relevance of African education to meet the needs of individuals and the community has come under attack as a result of the following:

(a) the emergence of the problem of having to employ school leavers without vocational orientation in productive and socio-economic activities.

(b) the continuing rise in the number of unemployable university graduates and the rising tendency for them to pick jobs requiring lower qualifications.

(c) the alienation of higher education products from communities and cultural heritage and the accusation of their living in ivory towers;

(d) the increasing treck of school leavers to cities and towns in search for white-collar employment and a dislike for blue-collar or manual work; the general drift from rural areas to peri-urban and urban areas;

(e) Lack of greater opportunities for those with identifiable physical facilities and at worse, lack of system for early detection of mental disabilities.

(f) The general failure by education in achieving those individual competences necessary to lead a successful and creative life and for economic growth and hence the continued importation of expertise;

(g) The ever increasing demand for financial allocations to education which threaten allocations to other sectors of the economy;

(h) The inability of the educational system to match the increased rate of population growth and meet increased demands for educational opportunities.

3.3 To-day for instance, because we consider that the ultimate aim of rural education should be to increase productivity and contribute to the economic and social development of the rural people, we have been quick to suggest that the functions of the rural schools should, in the first place, be to equip the rural pupil/student for integration into the rural-agricultural society and economy and in the second, to equip that some pupil/student for integration into the national society and economy by equiping him with basic skills for further adaptation for a variety of the ways of life[1/].

3.4 Recent arguments about schooling, vis-à-vis education, indicate that the education currently being provided is showing down development instead of accelerating it. A few questions therefore could be asked - What shall schools/colleges teach? To which student and for how long? How can teaching materials which are necessary for the storage and transmittal of knowledge be prepared and by whom? How can teachers as key variable to the learning process be suitably trained and retrained? How can methods for effecting learning process be improved? How can the effectiveness of teaching be improved? Indeed how can the entire learning process be continously adjusted to ensure that the education students receive is relevant to their own needs and those of society in which they like and will continue to live?

3.5 Education to-day is failing to prepare students for to-morrow's world and for the maximum happiness and usefulness of students in the worlds in which they would live as adults by equipping them with the right knowledge and attitudes and basic skills. It is failing to anticipate and respond to the rapid changes of modern life. Universities in Africa, for instance, while remains concervative fail to emphasize on agro-forest based industries in a continent with vast potentials, and give little emphasis on minerology. What is being taught in some of the institutions of higher learning is out of step, and at best preposterous, with the demands of society and the economy. Of what use is Latin to modern Africa

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1/ Chiwona Peter H. Problems of Rural Development in Malawi - University of Malawi, Chancellor College Paper CC/SE.14, Zambia 1974, P.9

when even an emissary to the Holy See cannot present credentials in Latin? No wonder schools and universities in Africa seen charged with paving the high ways to the cities seeking white collar employment rather than equipping graduates with necessary skills for clearing pathways to the field 1/.

3.6 Broadly therefore the main features prevelant in African educational systems related to relevance of education are:

(a) the unsuitability of the curriculum to the socio-economic situation of the region less emphasis on agricultural subjects inspite of the region being 70% rural less science and mathematics bias and more emphasis on arts subjects;

(b) serious neglect of vocational and technical education relative to the needs of the economy

(c) the emphasis attached to formal education which leads to serious questions for paper qualifications and certificates irrespective of the marginal value of such certificates

(d) inappropriate teaching methods used by inadequately qualified and untrained teachers;

(e) the prestige attached to administrative and white collar jobs and the negative social attitude towards blue collar jobs consequent upon the educational system emphasis on theory rather than practice and on arts rather than science and technical subjects.

(f) initiation of metropolitan curricula methods and practices and dependence on same for instructional materials and resources and the continued use of foreign institutions for human resource development;

(g) Terminal and dead end nature at each of the levels, which increase learning out-push rather than opening an avenue for new exploration of the other aspects of the learners potential.

(2) Extending Educational Opportunities to All

3.7 The African region is undoubtedly committed to achieving social justice for the majority of the population, but to have this translated into reality calls for the mobilization of the political will of the people in order to work vigorously and collectively to bring about the necessary changes in the conditions of living. Although all men have the right of access to educational facilities - men and women young and adult, rural and urban, able and disabled the current educational strategy relies heavily upon the structures of conventional formal school to provide access to educational facilities and learning experiences. It pre-supposes that the physical and mental abilities of the potential learners are the same.

1/ Chiwona Peter H. - Problems of Rural Development in Malawi, Op.Cit. p. 9

3.8 African education to-day is still concervative and viewed as a time- and place-bound process with the emphasis on conventional academic skills and subject matter. Although it is no longer the privilege of an elite or the concomitant of a particular age, it is not reaching out to embrace the whole of society, cater for the individual mental and physical disabilities and the entire life span of the individual in soci ty. Indeed education should no longer be seen to be a segrated activity conducted for a certain hours in certain places at a certain time of life. It must be by all, at all times, for all society; any time, any where by any one: irrespective of their political and mental state. In this way, formal education should not be restricted but should allow for education in the home, in the street, in the field; through the press, and other distance teaching and mass media facilities.

3.9 While the will to extend educational opportunities to all is there, the majority of the population is without education which would enable them to cope with the problems of living and prosperity in a predominantly rural and agricultural economy because of some of the following problems:

(a) Demographic Factors

3.10 No African country in the seventies had its population growing at less than 2% per annum. Over half of them had population growing at 2.5% or more. While life expectancy was improving for most of the countries, adult literacy rate was still very low at less than 25% for some of them.

3.11 In an attempt to match rate of population growth with the rate of providing educational facilities, many countries are handicapped by lack of sufficient resources in terms of trained teachers, finance and educational (residential and instructional) facilities and training materials. Pupil-teacher ratios were high in Africa as compared to other developing countries.

(b) Enrolment at First Second and Third Levels

3.12 Enrolment at the three levels of education in African countries showed the disparity in educational attainment among individual countries of the African region. During the seventies Algeria and Zambia had nearly 100% enrolment ratios while Upper Volta had only 17% for primary education. First and Second levels enrolment combined ranged from 10% in Upper Volta to 64% in Egypt while higher education ranged from 0.23% in Upper Volta to 14.47% in Egypt. Enrolment at Third levels per 100 000 inhabitant ranged from 15 in Tanzania to 1,366 in Egypt[1/].

3.13 These numbers at the Third level are very small. They tend to highlight President Nyerere's concern that "higher education at this stage of development is a social privilege and not a personal right. Therefore education for a selected few must be education for the service of the many. There can be no other justification for taxing the many to give education to the few"[2/].

1/ Source: ECA Manpower Development Section Addis Ababa

2/ Nyerere Julius, President - Speech to the University of Dar-es-Salaam, 1977

3.14 Increased enrolments are hampered by lack of human and financial resources, lack of innovative approaches to educational development to allow for flexibility in intakes intake procedures, utilization of instructional and residential facilities, high wastage rates, and a wage salary structure that operates against teachers, thus turning away many from joining the teaching profession.

(e) Socio Economic Factors

3.15 Africa is still dependent on metropolitan countries for curriculum design and financial resources for the development of education. Countries continue to import instructional materials. The region is fast becoming less and less traditional as attempts towards industrialisation countinue to mount. However there is an affirmation in many countries of cultural identity as some countries have emphasised the use of national language for out of-school education and formulated language policies in education. All these have bearing on the development of education.

3.16 Within the context of socio-economic factors, has been the thorny issue of brain drain as per table 3 which shows the many specialized personnel who were working in USA and United Kingdom during the period 1962 1972. In terms of unemployment, the African region had total labour force of some 140 million persons in 1979 of which 10 million were in urban areas unemployed or under-employed; while the rural areas had more than 50 million under-employed. Such a situation does not augur well for the region which has only limited capital resources, a poorly developing agricultural sector, and a small industrial sector with a low labour absorptive capacity. This has serious implications for educational development.

Table 3: Migration of professional manpower from Africa to the United States and United Kingdom

Recipients	Scientists and Engineers	Physicians and Surgeons	Teachers	Total
United States	2 334	912	n.a	3,246
United Kingdom	1.034	3 845	5 296	10,176

Source: ILO. Employment Growth and Basic Needs A one-world problem Geneva 1976. p. 130

(3) Diversity and co-ordination of education

3.17 The beauty of educational systems in Africa lies in its diversity consequent upon a colonial heritage and in the languages being used. Evidence also shows that educational reforms often lead towards the promotion of national outocracy in education. In general therefore, diversity and co-ordination of education are manifest in.

(a) Educational Policies

3.18 These appear to have been reduced to the proclamation of a few overall guiding principles. Rather they should comprise a close knit unified structure of specific objectives - socio-cultural, economic political educational etc. and strategies for their implementation when objectives have been determined. it is not enough just to list them priority should be determined and their place given in a co-ordinated whole which only then deserve the name of educational policy.

3.19 The translation of policy objectives into operational terms brings out concrete goals resources likely to be allocated decision marking criteria and models forming the range of possibilities. In general therefore, educational policies in Africa have shown to be ineffective in countries where there has been lacking the combining element from the people community leaders and politicians the probability element to confront the challenge and the element of will on all parties to educational development.

(b) Formal and non formal education

3.20 As human and financial resources are extremely limited there is the need to complement formal education with non-formal approaches to education including distance teaching techniques so as to reach the rural areas with a view to improving their living conditions. To maximize resources, formal education must be complemented by non formal education so that education is no longer regarded as an end in itself but as the fundamental component of total educational activity which includes both institutionalized formal education and out-of-school education. There is therefore the need to deformalize and diversify educational models and reduce excessive prolongation of compulsory schooling which at present is beyond the capacity of many African countries.

3.21 Education conceived as an existential continum as long as life need therefore be a composite of formal and non-formal education. Indeed in Africa the complementarity of formal and non-formal education cannot be over-emphasized since the two should foster political awareness and civic responsibility.

(c) Research and Experimentation

3.22 African research has not so far been used for productive work nor has it been used for the production of goods and services such as the production of designs/prototype spare parts agricultural tools and implements, farm chemicals such as fertilizers and improved productivity. Research has not been helpful in the transfer of real resources involving for instance industrial production, technical assistance and technology. Research in educational institutions has not been greatly oriented towards the production of specialists in various disciplines and the requisition of skills to the production of instructional materials and textbooks and the development of self-reliance.

3.23 Although there has been a marked increase in collaboration and co-operation between institutions of higher learning and industry in research activities, in narrowing the gap between theory and practice in the production of engineers technicians and even technologists such collaboration and co-operation has been insufficient and should therefore be pursued with more vigour.

(d) Traditional and modern education

3.24 A large proportion of the African region is still traditional, living in traditional houses with traditional utensils and facilities and subsistence living. Some are at the fringe of modern society; others at the periphery of urbanization. Over 70% of the African region is rural buried and pacing between traditional/subsistence farming and modern agriculture.

3.25 African education has been failing to strike a balance between traditional education and modern education so that those who return to the traditional and rural society are equipped with necessary and relevant skills for meaningful living. Instead education has continued to be a transplant and an imitation of metropolitan countries aimed at siphoning the brightest youths into white-collar employment and an escape route from the handship and poverty of rural and traditional life. Even higher education has been more atuned to the production of scholarly academics devoid of solutions to the problems of rural societies.

3.26 This paradox of traditional life within modern Africa has escaped the attention of leaders, planners, policy makers and educators to see that modern education must be a blend of the traditional and modern aspects of living by equipping the same child with knowledge, skills and attitudes conducive to good living in either sectors of society.

(e) General education versus technical/vocational education

3.27 Current education in Africa is heavily weighted in favour of general education and not technical/vocational education. The involvement of technical education in comparison with general education was in the proportion of 16% to 84% in 1975; at 21% to 79% in 1980 and estimated at 26% to 74% in 1985. Estimated output was estimated at 25% in 1980 and at 30% in 1985 of total educational output[1/].

3.28 While efforts to strike a balance between general and technical education have greatly increased, there is the need to formalize the links between the various levels of technical education and vocational training in the interest of facilitating the production of technical personnel. Besides, universities and other higher institutions of learning have not enhanced the creation of second chance opportunities for students who would otherwise drop and disappear, and for the more able, whether at training institutions or at work, to switch to a higher level of training so as improve their qualifications and skills acquisition.

3.29 Further, the link between technical training institutions/universities/polytechnics and industrial sector ought to be more rigorous to ensure the incorporation of practical aspects in the training programmes of technical personnel so that upon completion of training worker recruits have a sound base to start working

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1/ ECA: Manpower Development Section. Estimates of enrolments and outputs for the West and East African sub-regions.

(f) Orientation of higher education

3.30 The expansion of secondary education following the advent of independence led to a rapid growth in enrolments at the higher institutions to sooth the social demand for higher education. This resulted in the establishment of many institutions of higher learning. The education and training provided by some of these institutions differed in quality and substance because almost all of them were imitations and carbon copies of metropolitan institutions. There was little orientation to the socio-economic conditions/situation of the African region.

3.31 To-dey higher education faces a serious problem in respect of employment for graduates because of the unsuitability of knowledge, skills and attitudes to the work/job and employment requirements. Curricula and training do not correspond with the professional demands and technical training is not rigorously practice-oriented. The graduates tend to lack civic responsibility and professional conscientiousness essential for national development. Again very few institutions in Africa have heavy agricultural bias arts and crafts cultural development weaving woodwork, metal work, leatherwork and processing of agricultural products let alone forest products.

3.32 Indeed educational systems in Africa especially at higher level of learning tend to enrol more students in the social sciences than in science scientific and technical/technological courses. This may be due to the prevailing attitude of sciences being difficult, hence students stay away from it or because of lack of teachers and inability to finance the rather high costs of running science programmes.

(4) Optimal utilization of resources

3.33 The Ministers of Education at a Conference in Nairobi categorically stated that national levels of educational expenditures had reached their limits and further increase would seriously jeopardize other areas of national development[1/] It was pointed out that available resources - human or financial from domestic or external sources would have to be judiciously used so as to reduce waste while ensuring that the right to education and the benefits of education filter down to the maximum number of nationals of a country.

3.34 Teachers/instructors take a higher proportion of the education expenditure in salaries how then are we to fully utilize their services for money s wor h for the benefit of the community for social work; for literacy programmes and extension work? With the rising costs in the training of teachers, procurement of equipment and building costs African countries have not been able to keep pace with the social demand for education.

1/ UNESCO: Final report of the Conference of Ministers of Education of African Member States Nairobi 1968

3.35 There is thus the question of allocation of resources to education. The bulk of the available resources go into the support of the conventional formal schooling. Resources for out-of-school education have been meagre. But as education is being conceived more as a life long process, no longer being place-bound and time-bound there is need to increase the allocation of resources to the non formal education sector. Further since the greatest problem in educational development has been the lack knowledge to decipher what educational actions are effective, and what strategies to adopt to make them effective, increased resources would have to be allocated for explanatory action oriented educational research, experimentation and innovation. This is imperative which is not well understood by the African region.

4. Can educational systems meet the challenge?

4.1 Mention has a ready been made that the real challenges to African leaders in respect of educational development are much more fundamental than those which emerge from the political rhetoric at OAU Meetings because there is the urgent need to consider the precise nature of the challenge - areas of real interests and of urgent need: and areas where real progress can be made of the development of mankind without fear of hunger, poverty disease and degradation. Unlike in the past, it is out of question to confine education to training the leaders and adults of tomorrow in accordance with some pre-determined schemes of structures needs and ideas and preparing them once and for all for a given type of existence.

4.2 It is up to Africans themselves to invent for themselves forms of education which suit them best: which draw upon their age old heritage of knowledge know-how cultural values, and modes of existence in confrontation with the present realities of an extremely rapid change towards a new quality of life that will satisfy the needs of the African to enable him to play his responsible role in making the world of tomorrow. We should not, therefore, disassociate the problem of ultimate purpose of education - i.e. the production of people with all round training - from the question of how society is likely to develop.

4.3 In facing up to the challenge the ideologies on which schools and universities are based must be related to the values of adult life in which case a few questions might be asked: how successful are schools and universities in preparing individuals for working life in Africa: for personal development: for the modernization of the information it transmits and its openness in relation to experience and traditions: for preparing individuals for self-reliance and self-sustaining activities, and for cost effectiveness in the use of time, instructional and residential facilities human resources and educational development? Thus the challenge to education of an authentic African education calls for African leaders politicians educators policy makers and planners to take action in the following specific areas of concern.

(a) Policy reforms, administrative structures and practices

4.4 Educational development policy should concern itself with education in all its aspects: it implies the translation of targets in terms of the structure of the educational system and the administrative mechanisms behind it: its financing, construction of school buildings, the content of courses and the methods and materials for teaching and learning; the student flow in the system; wastage and drop outs; teachers recruitment, turnover and training (initial and in service), research and experimentation etc.

4.5 The fundamental problem underlying African educational policies is how to develop the kind of education schools/colleges should provide because there is a difference between providing schools/colleges and providing education. Much as it is easier to argue that more schools should be built, more pupils enrolled and more teachers trained, it is very difficult to decide what these schools/colleges should do to bring about the desired results - the education of resourceful and competent citizens who realize their own potentials and contribute to the development of their communities. Yet African education is not innovative and forward looking enough, nor is it adequately responding to the swift changes of modern African life.

4.6 Educational policy therefore should comply with overall national objectives; should deduce educational objectives from aims approved in overall political policy, and should harmonize educational objectives with those adopted in other sectors of national activity.

4.7 Since the demand for education continue to increase every year, educational strategies must be modified so as to move from quantitative to qualitative, from dependence, imitation and reproduction to search for innovation, and from centralized and uniform procedures to diverse alternatives. The translation of policy into action should be two-dimensional:

(i) internal reforms and continued improvement of existing educational systems in respect of curricula, methods, techniques and practices, instructional materials, administrative structures and machineries, conditions of service, recruitment of teachers, admission procedures, examinations and accreditation, wastage and drop-outs.

(ii) the search for innovative forms for alternative approaches to educational development and fresh resources such as intensified use of mass media and distance teaching techniques, emphasis on productive education, rationalized theory and practice education, and linking the world of education with the world of work.

4.8 However, because of the distinct geographical, cultural, socio-economic and linguistic divisions in Africa, it is better to diversify and decentralize national strategies, leaving local communities with some broad freedom of action. to this effect, there is need to have sound and workable educational policy.

(b) Diversified curricula for productive education

4.9 Traces of historical heritage in education are highly eminent and visible. The "African colonialate" continues to hover across the continent with educational systems in English-speaking African being more English than the English and French Africa still being more French than the French. Though the curricula has been diversified it is still metropolitan oriented. Africa needs full integration of agriculture into the curricula with concentration on knowledge and skills related to:

(i) work on high yielding varieties of basic food crops;

(ii) filling the protein gap;

(iii) war on waste and preservation of good and agriculture products;

(iv) self employment and self-sustaining techniques in agriculture.

4.10 African education should emphasize on industrial production and craft work. An important role should be assigned in the curricula to productive activities in factories and school workshops. Students should be involved in construction work, leather work, wood work metal work and self-generating activities within the African context. Education should emphasize on such activities as those of producing agricultural machinery implements and tools water supply, pipes and pumps; low cost building and construction; preservation and food processing, packaging and storage mass production of goods; production of spare parts; crafts and a host of other industrial activities.

4.11 The development of correct attitudes on the part of students to productive activities is crucial to the survival of the region, and hence these activities should be introduced in the curricula as early as possible to stop thinking in stereo-typed fashion that only white-collar employment is good enough for an individual. Latin and Greek have no place in Africa as elsewhere in developing countries. There is room for agricultural education arts and crafts, technical education, science and mathematics village and rural technology arts, social science culture civics and national languages.

(c) Dependence and imitation: Methods techniques and practices, Text books examinations certification and accreditation

4.12 The Entebbe Mathematics demonstrated Africa's determination to reduce dependence on and imitation of metropolitan countries, but the attempt was a fly in the pan as it is no more. In spite of Africa's professed development in education, the methods of teaching techniques and practices and text-books continue to be replicas of colonial systems and historical heritage. Examinations, accreditation and certification, localized as they are, none the less are not truly indigenous. They continue to be foreigners in national dress which, as experience has shown, never fits to the perfection and excellence of nationals.

4.13 The need therefore is to intensify:

(i) the production of text books suited to the needs conditions and situation of the African region for use at all levels of educational system. While such effort has been done at the first and second levels text books used in higher institutions in Africa are foreigners in national dress. Universities must intensify efforts to produce text books for use in Africa:

(ii) Re-examination of methods techniques and practices in African education to-day. More use should be made of the media. the press and distance teaching techniques. Few African universities, if any. offer external diplomas/degrees since current practice is that one gets such qualifications by going to a college campus. This should not necessarily be the case. Classroom teaching combined with distance teaching techniques could yield same/similar results

(iii) More efforts should be made to indigenize examinations certifications and accreditations rather than the current practice which shows foreign bodies operating under local names. The African region is more concerned with international standards and recognition than the utility made of these institutions to local needs. The situation is more serious from the vantage point of professionalism since almost all professional bodies/ institutions in the region are foreign in origin philosophy. outlook and practice. Yet Africa's development of professionalism depends on the will commitment and determination to indigenize rather than localize examinations, certification accreditation and professional bodies.

(d) Increased Intakes in Higher Institutions

4.14 The expansion of secondary education continues to mount pressure for more places at universities and institutions of higher learning. but the rising costs of providing full time education at college campuses prohibits increased intakes nor does it allow for second chance to those who for various reasons did not go on to universities. Higher institutions enrolments can be increased through a reorganized intake of at least twice a year though not necessarily double intake. After some months on campus students go on attachment while others come for lectures through the media and distance teaching techniques coupled with discussion seminars workshops once a month or so. This approach has also the added advantage of re-aligning theory with practice.

(e) Towards more Technical/Vocational Education

4.15 While efforts have been made to strike a balance between general and technical education greater links are needed between the various levels and institutions of technical education and vocational training so as facilitate not only the production of technical personnel but on impeded growth from one

one level to related university faculty. Universities should create opportunities to technical personnel who having completed their technical secondary level undergone technical training in polytechnics and worked for sometime, should be allowed to go for higher level training so as improve their training and skills acquisition.

4.16 Even at second level education more attention should be given to technical/vocational training/education. Arts and crafts wood work metal work leathery black smith and agricultural techniques should assume a more important role in the curricula than has been hitherto the case.

(f) Need for Science/Technical Teachers/Instructors

4.17 Since the major bottleneck in the development of scientific and technological subjects and activities is the lack of well trained science and technical teachers/instructors the new strategies cannot be effectively implemented unless a deliberate attempt and efforts are made to improve the supply of trained science and technical teachers/instructors. The envisaged diversification of the curricula calls for increased efforts in the training and retraining of teachers instructors especially for science mathematics agriculture and technical subjects.

(g) Research and Experimentation

4.18 African research should be used for pioneering reform, innovations and for the production of goods and services such as spare parts, agricultural tools and implements, farm chemicals, and improved work processes in the various sectors of the economy. It should help with the design, development and transfer of real resources and technology; it should be oriented towards the production of specialists in various disciplines and the acquisition of critical skills. It should help with identification and selection of equipment its installation operation, maintenance, improvement and reproduction, and should as far as possible be instrumental to the solutions of many of the industrial problems.

4.19 Governments and industries should therefore finance research projects in an attempt to solve many of the industrial problems of the region.

(h) Realignment of Theory with Practice

4.20 In order to foster learning activity, the mental process must be accompanied by manual activity so that the skills of production are acquired through the actual productive activity. Although not all mental or manual work is educationally productive, education should relate theory with practice by including industrial, artisanal, technical and agricultural activities in educational programmes as well as service activities intellectual and artistic activities in real working situations so that graduates from the system have a thorough grasp and understanding of the real world of work.

4.21 Co-ordinating the progressive of theoretical learning with that of practical learning poses serious problems of co-ordination and collaboration of planning and implementation and of organization. This therefore calls for full collaboration between educational institutions and the community and centres of economic activities. African education should be more practice-oriented to the needs and conditions of the region than has hitherto been the case.

(i) Rational Resource Utilization

4.22 As a system education is not a black box which transforms inputs into outputs. One must know the transformation functions involving many systems parameters such as the required/core subjects optimal subjects subject loads of both staff and learners hours per week of practicals and theory the passing and failure rates wastage rates departmental policies. class sizes extent of emphasis on research. office classroom and residential space, distribution of staff among ranks administrative duties support services staff turnover conditions of service and so on.

4.23 Rational resource utilization involves four components viz.' human beings, machines and plants (i.e. equipment and facilities) materials and finance. A few questions may be asked in connexion with resources given objectives goals and operating policies what resources of each type/component will be required when and by whom? How can these resources be generated, developed and acquired If resources cannot be acquired then the goals/policies must be revised to achieve a balance. Thus there should be continuous interaction between setting goals specifying operating policies and planning and utilization of resources.

4.24 The productivity of an organizational unit is affected by the amount of resources made available to it. It is therefore important to determine how the quality and quantity of education provided relates to the amount and mix of resources that are made available. There is then the urgent need to continue the search for efforts and solutions to the complex problems of resource planning and utilization. There is no reason why operational research which has been very useful in determining the optimal size or capacity of a facility where to allocate it and when to replace it cannot be used and applied to educational facilities.

4.25 The increasing need for accommodation and intensive use of existing resources could be met by innovative approaches to the development of education: changed methods of instructions and teaching through double or increased intakes and through distance teaching programmes. Shortage of trained personnel could be met through increased class sizes increased teaching loads coupled with shorter periods as to when to take sabbaticals.

(j) Socio Economic Programmes in Education

4.26 African education should give great emphasis on social activities and services. With the current high rate of illiteracy at 75% students should be involved in the improvement of health hygiene and food production and in insfrastructural development. Since infrastructural deficiencies and services

such a. roads transport and communication health education housing water and electricity account for the low living standards in Africa there is need for innovative approaches to the solution of these deficiencies and not through conventional concepts measures and instruments.

4.27 Through carefully planned educational programmes the youth and women can greatly help in the development of infrastructure although in the pursuit of operational objectives they may require the active co-operation and collaboration of technician village communities organized for concerted social and economic programmes.

(k) The Development of Appropriate Technology

4.28 Technology is the new deity to which policy makers and economists are making obeisance these days. While it is easy to be euphoric about the new benefits the new god can shower the subject bristles with complex issues such as

(i) Should Africa follow the Japanese model and borrow from the existing shelves of technologies in the west?

(ii) Should she follow the Chinese model of utilizing the scientific skills possessed by nationals to innovative labour intensive technologies?

(iii) If the relative factor prices were put right would this result in the adoption of labour intensive technologies and change in the product mix towards more labour-intensive products as is supposed to have happened in Taiwan and Korea?

(iv) What are the implications of adopting labour-intensive technologies for income distribution and growth?

(v) What are the administrative and managerial problems posed by the adoption of labour intensive technologies?

4.29 Conventional criticisms have it that technologies perfected in developed countries are inappropriate to the factor endowments and production conditions of developing countries because technologies of metropolitan countries are capital intensive where as African countries are endowed with relatively more labour than capital. Thus this criticism of inappropriateness refutes the thesis of development through technological borrowing as it leads to further dependence through lack of trained and skilled personnel to develop appropriate technology and through a drain on foreign exchange to pay for the transfer.

4.30 For Africa therefore it may be possible to develop intermediate technologies which involve upgrading traditional methods of production and downgrading metropolitan methods by a combination of modern technology with labour intensive tehhnology.

4.31 The scope for augmenting employment through the adoption of labour-intensive techniques appears considerable but the major challenges facing the African region is harnessing technology to the needs of African development. The need for treating technological change as an integral part of the development problem. Therefore priority areas must be identified for the development of appropriate technology. Besides sufficient funds must be made available for equipment critical areas such as pilot plants field trials demonstration projects information exchange etc. Further there is urgent need to develop institutions with the potential for developing appropriate technology and also to strengthen the development phase of technology generation compared to the research phase. This situation is presently weak.

4.32 In addition Africa should strengthen appropriate technology delivery systems by facilitating direct contacts between the producers of appropriate technologies and the users of such technologies and should encourage the exchange of experience among appropriate technology institutions/groups in African countries and the developing countries of other regions.

(1) Developing trained/skilled manpower

4.33 The most serious challenge to education is the development of trained and skilled manpower with competences in spearheading reforms and developments in:

(i) The education sector itself: The education sector needs competent and well trained teachers/instructors/lecturers forscience, mathematics, technical/vocational subjects and for teaching in institutions of higher learning including institutions of appropriate technology, and for teacher training of first and second levels of education.

(ii) Rural and agricultural development: For self-reliance and self-sustaining farming, education should cater for men with skills related to work on high-yielding varieties of basic food crops, food processing and preservation farm management and organization, distribution of technical inputs into farming such as improved seeds, agricultural chemicals machinery implements and tools, credit facilities and be knowledgeable in agricultural policy in respect of land, marketing production and distribution of food and should have a composite of skills knowledge and attitudes for working in rural areas.

(iii) Natural resources and basic industries: Educational systems in Africa have not sufficiently adapted their curricula to the needs of various skills required for development in general, and industrialization in particular. This is more so in respect of trained and skilled manpower for the exploration and exploitation of mineral and natural resources and for basic industries. Education should aim at producing men with both administrative and technical skills for prospecting/exploration exploitation and processing of mineral and natural resources.

4.34 More specifically, the region should aim at producing scientists, engineers geologists chemists, agronomists technologists technicians (especially at the middle level) and various specialists whose crucial skills are neeessary for industrial and natural resources development. To this effect, the development of institutions for the production of these is of utmost importance because the cost of training and educating African nationals overseas has become prohibitive besides being attacked of having disoriented the beneficiaries. There is thus the urgent need for intra-regional co-operation and collaboration in the development of personnel with specialists skills and in the use and development of sub-regional and regional institutions.

5. Conclusions

(1) Problems addressed

5.1 Since the 1961 Addis Ababa Conference, there has been appreciable progress in education both quantitatively and qualitatively as well as the resources allocated to education. However, major problems and constraints continue to persist viz.

(a) Educational development policy has not been very effective in concerning itself with education in all its aspects - in the translation of targets in terms of the structure of the educational system and the administrative mechanisms behind it; its financing, construction of school buildings, the content of courses, the method and materials of learning, text books production, the student flow in the system, teacher recruitment and training; research and experimentation; examination certification and accreditation curriculum development national language teaching and use in education development of appropriate technology, conditions of service and democratization of education

(b) The fundamental problem underlying all educational policies in Africa is how to develop the kind of education the schools/colleges should provide because two decades after independence, education continues to be oriented towards white-collar employment, devoid of African realities a transplant and replica of metropolitan systems, with an irrelevant curricula using antiquated methods;

(c) African education continues to be confined to educating and training the leaders and adults of tomorrow in accordance with some predetermined scheme of structure, needs and ideas and to preparing the young once and for all for a given type of existence. Although education is no longer the privilege of an elite or the concomitant of a particular age, it is not reaching out to embrace the whole of society and the entire life span of the individuals. Local and national communities are in themselves eminently educative institutions which ought to be used in the education process;

(d) The co-existence of extremes of poverty and affluence in many African societies is a cause for concern to leaders and policy-makers and this has led to mounting pressure on the democratization of education as a magic elixir to these ills. Demand for increased facilities and resources has been on the increase ever since.

(e) African faith in the development and transfer of technology continues to increase. However the Green Revolution was one example of the general myth that there exists technological solution to all problems of development when in fact, there was no technological miracle. Sensible policies involving proper incentives and making a package of inputs available to a given sector like education can raise output and increase productivity.

(f) The galloping population growth in Africa which threw off the forecasts in respect of school enrolments, human and financial resources required additions to the labour force increasing dependency ratio and diminishing self-sufficiency in food;

(g) Intent nationalism born of the euphonia of independence and national sovereignty led to African States increase funds allocated to institutions of higher learning, the maintenance of which has proved costly and further expansion impossible without aid from metropolitan countries;

h) The shortage of skilled middle and high level managerial, professional and technical personnel with competences in direct production of goods and services especially in agriculture, basic industries, mineral and natural resources, science and mathematics, education, health, transport and communication and various technical skills. The shortage of maths and science teachers/instructors has been deterimental to the production of more persons qualified in those disciplines and hence the continued dependence on metropolitan countries;

(2) Guidelines for action

5.2 Concerted efforts should therefore aim at:

(i) Engineering innovations in education in respect of administrative structures, curricula, methods of teaching, techniques and materials, textbooks, examinations, recruitment of teachers and their conditions of service and educational policy;

(ii) Helping traditional societies force themselves from various forms of dependence on advanced countries - life styles, food finance, skilled and trained personnel, training and development of human resources, research, health and hygiene;

(iii) fostering the emergence of attitudes and behaviours committed to the cause of progress and modernity and to productive and work-oriented education.

(iv) fostering the development of science and indigeous and appropriate technology. In this regard attention should be focussed on work for the development of appropriate technology to the African region, improve the flow of information about appropriate technologies among member States reduce duplication of efforts, enhance regional mechanism for the promotion of appropriate technology, increase funds for technological research; and since there is an absence of appropriately endowed institutions with the potential for developing appropriate technology, serious efforts should be made in establishing African institutions at national sub-regional and regional levels for same.

(v) As a collorary to (iv) instead of handling a whole spectrum of possible appropriate technologies the African regions should concentrate on a few selected priority areas such as appropriate agricultural processing and preservation technologies appropriate mineral/natural resources exploration exploitation and processing technologies and appropriate industrial development technologies. The selection of these priority areas must reckon with current efforts of countries institutions and groups active in appropriate technology and shouldbe consistent with the objectives of appropriate technology - viz - to raise the productivity and income of the poor and to make use of local resources, produce appropriate products for national needs and to generate employment.

(vi) African countries must formulate syllabuses and programmes that best correspond to the individual or group aspiration and potentials of various groups. Hence the need for agriculture to be included as a major curriculum subject if we are to be self-sufficient in food; and for productive education as a programmed activity encampassing wood-work metal work, black smithing, leather-work, arts and crafts, dance and drama, cultural activities health, education, transport and communication and a whole range of related activities.

(vii) fostering sub-regional and regional co-operation and collaboration with focus on research, development of appropriate technology, dissemination of information, text book production curricula, contents and methods, staff and student exchanges; staff and personal development; fellowships programmes and use of institutions for the development of human resources and technology.

(viii) investigating the possibility of creating an African Task Force under the auspices of ECA/OAU to serve in countries with serious manpower shortages or with urgent reconstruction programmes. A special fund should be set-up for the Task Force made up of

skilled and trained African nationals whose services would be for a fixed term while efforts by the said country/countries are being made to develop its/their own resoruces. For a start such a Task Force could concentrate on teaching, medical services, industrial development and production, transport amd communication and agriculture:

(3) Reorientation of Education for Development and Effective Exploitation of Natural Resources Endowment

5.3 In an attempt to answer some of the problems and issues raised in this paper a project under the title of the Reorientation of Education for Development and Effective Exploitation of Natural Resources Endowment is being tabled for consideration and adaptation and adoption by member States, as a project designed for their own use. The long-term objectives of this Project are:

1. to strengthen the development of sound educational policies by African Governments for the enhancement of human resources development and utilization;
2. to develop sub-regional and regional capability of collective self-reliance and self-sufficiency in education and training, staff development, curricula reforms, research, technical and advisory services, finance, text books and instructional materials, with the consequent reduction of dependence on, and imitation of, metropolitan countries;
3. to develop appropriate curricula by African countries with a heavier bias towards science technical/technological, agriculture arts and crafts/artisanal and socio-cultural courses;
4. to develop the capacity and capability of viable economic and effective utilization of national, sub-regional and regional institutions for national as well as sub-regional and regional collective and collaborative use;
5. to develop within the realities and conditions of each African country work-oriented and productive education, industry-based research practice-oriented cum theory-oriented education, and appropriate technology;
6. to develop sound language policies and the capabilities and capacities of national language for education in general literacy programmes, distance teaching techniques and programmes mass media and life-long education;
7. to enhance African capability and capacity for human resource development with competence in such critical areas as science, appropriate technology, agriculture mineralogy, geology, surveying, planning economics, engineering, medicine finance trade energy, demography statistics, hydrology, mining engineering and education itself.