

AN APPRAISAL OF TWO-DECADES OF EXISTENCE OF UNIVERSITIES OF TECHNOLOGY IN NIGERIA

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ABSTRACT

Nigeria presently has the highest rate of growth of higher Institution in the whole of black world [1]. Equally, the fund allocation to Federal Universities has risen from ₦621.65 Million in 1981 to ₦ 26,669 Million in the year 2000. However, the quality of graduates of the Nation's Universities of Technology, two decades after inception, is falling drastically. This paper attempts to appraise the growth in number, enrolment and funding of these specialized institutions alongside the conventional ones in the last two decades. Reasons were proffered for the falling standard of training in these institutions and suggestions were made for charting a new course for the Nation's engineering education.

Key words: Engineering Education Enrolment Fund Development

INTRODUCTION

The legacy left by the Colonial Masters has often been blamed for the multifarious problems that bedevil engineering education in Nigeria. The non-technological orientation of the only 'University' as at independence, the uneven educational development of the various segment of the Federation have all been cited to justify this claim. Four decades of independence have however witnessed significant development in Engineering education in Nigeria. This Nation presently boast of having the highest growth rate of Higher Institution in Africa and indeed among the black Nations of the world [1]. More than 75 percent of the Federal Universities have engineering faculties or schools. Huge investment have gone into the development of higher education to satisfy the quest for rapid economic and technological emancipation of the Country from Neo-Colonialism. The last two decades witnessed the emergence of specialized institutions basically in Agriculture and Technology. The objective is to jump-start the economic development by laying emphasis on food sufficiency, growth of Agro-Allied industries and development of appropriate technology that will answer the quest for liberation from over dependence of the Nation's economy on importation. Almost 20 years after the establishment of various Universities of Technology and Agriculture, not much seems to have changed in the perspective of University Graduates as a product for the labour market. The much desired creators of employment and job opportunities expected from these Institutions have not been able to live up to the challenge. This paper x-rays the growth of University in the Country in the last two decades with the aim of analyzing the change, if any, in the style of funding the specialized institution and the conventional ones. The rate of increase in students' enrollment vis-à-vis the nation requirement for industrial growth was looked into. Many problems confronting these institutions were analyzed and recommendation was made for charting a new course in the Nation's approach to the management of technological education.

HISTORICAL ANTECEDENT

The first group of Nigerian Engineers were graduated in foreign Institutions between 1898 – 1936. In spite of the obvious need of the pre-independence Nigeria for the training acquired by these pioneers, they

could not find a place for themselves in the Civil service as most of them were frustrated out [2]. This was a clear discouragement of the then budding initiative to train Engineering personnel for the Nation.

Thus as at independence, the only University College bequeathed the Nation by the British Government has curriculum only in English Language, Latin Greek and Religion studies [3]. The emergence of 5 Universities, barely two years after independence, is an indication of the ambition of Nigeria to massively train the much required high level manpower to take over the management of the various aspect of the National economy. The appreciation of the role of Engineering in the Nation's quest for independence from neo-colonialism made Engineering featured prominently in the curriculum of these universities. The second phase in the evolution of university education witnessed the establishment of more universities in 1975. Towards the end of 70s, the difficulty experienced in giving the desired attention to the training of Engineering Personnel within conventional University Environment initiated the talk about the Establishment of University of Technology. As at 1979, the National Universities Commission proposal for one University of Technology was not favorably received by the Government on account of the cost especially the cost of creating centre for Work Experience [4]. The almost simultaneous establishment of 5 Universities of Technology between 1980 – 1983 was regarded.

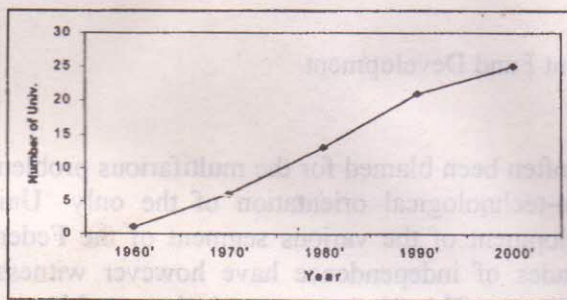


Figure 1: Graph showing the growth in number of Federal Universities between 1960 and 2000. (Source: Academic Planning Unit, NUC, 2002)

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not only as overambitious and ill-advised but it equally did not take into consideration the resource of the Nation and the adequate funding of this Institutions to enable them perform their statutory role. Two decades has passed since the establishment of Universities of Technology and Agriculture, the enormity of resources required to adequately fund these Institutions has dawned on successive administration. Hence, the subsequent growth in number of universities since then has been largely due to the effort of state government and private initiatives.

QUALITATIVE DEVELOPMENT OF ENGINEERING EDUCATION

The major reason for the establishment of Universities of Technology is the inability of the Conventional Universities to give adequate attention to the practical aspect of engineering training. Thus one of the vital and capital intensive component of University of Technology is the Centre for Work Experience. The centre is a must if the 'much theory at the expense of practical' syndrome of the conventional universities is to be adequately addressed by the Universities of Technology[5]. Part of the objectives of the Universities of Technology as spelt out in the decree establishing them are:

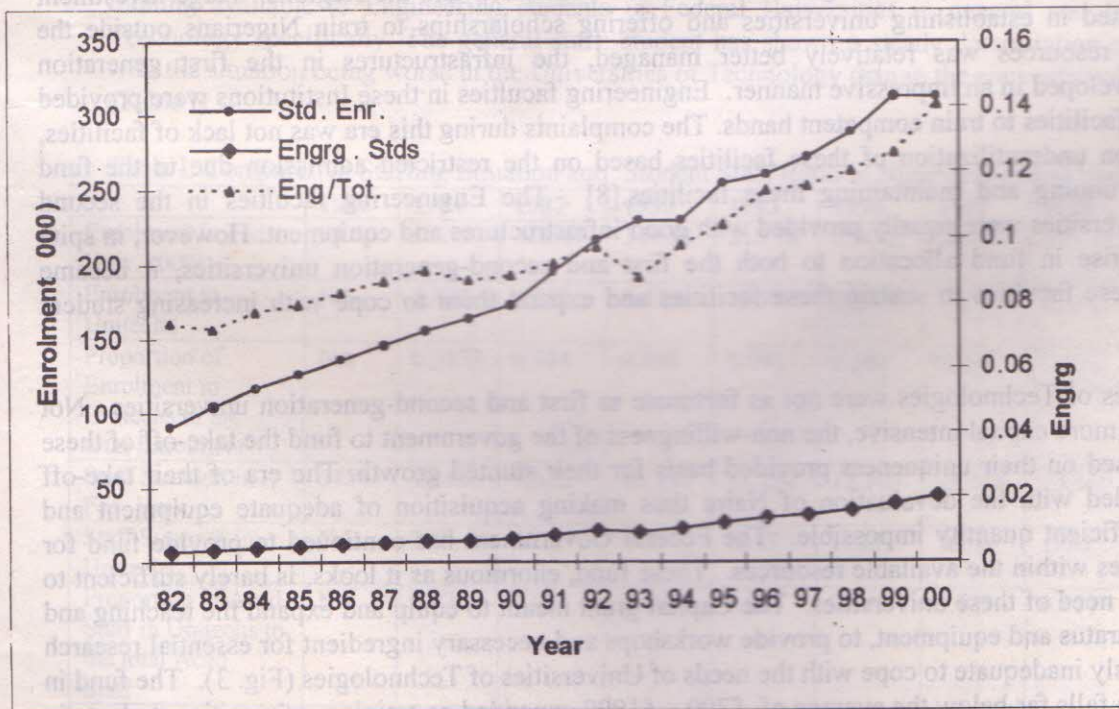
i) To develop and offer academic and professional programmes leading to the award of diplomas and degrees which emphasize planning adaptive, technical, maintenance, developmental and productive skills in engineering, scientific, agriculture and allied professional disciplines with the aim of producing socially mature men and women with capability to not only understand, use and adapt existing technology but also to improve on it and develop new ones.

ii) To provide and promote sound basic scientific training as a foundation for the development of technology and applied sciences, taking into account indigenous culture and the need to enhance national unity[6].

These objectives envisaged a high practical input in the training offered by these Institutions Their product are expected to be self reliant, self-sufficient and capable of solving the Nation's numerous developmental problems. The high tempo of rise in the enrolment and proportion of engineering student to the total enrolment (Fig. 2) and the slow rise in capital grant to universities give an indication of distorted growth.

Part of criteria for accreditation of degree programme in Engineering is the availability of such physical facilities as classrooms laboratories students workshops and tools instrument, machines and equipment. The facilities were not provided in sufficient quantity at the inceptions of most of the Universities of Technology. Expansion of this facilities is virtually at a standstill.

Figure 2: Growth in Enrolment in Nigerian Federal Universities for 2 Decades. (Source:Academic Planing Unit, NUC, 2002)



because of the meager capital grant to Universities of Technology and the alarming rate of enrolment growth.

Much of the practical training in the Universities of Technology are relying more and more on the inadequate exposure of students to practical training through Student Industrial Work Experience Scheme (SIWES). The quality of the training received under the 9 months scheme undertaken in two stages is diminishing due to difficulty in finding appropriate placement for the growing numbers of undergraduates in Universities of Technology. The complimentary scheme tagged Supervised Industrial Training Scheme in Engineering SITSIE focuses on young graduates. The scheme was established by COREN in 1992 as a means of addressing the inadequate practical exposure of graduate Engineers[7]. The well conceived scheme continues to face wide range of problems ranging from low level of industrial base and sourcing of fund to remunerate the participant under the scheme. The insufficient number of industries to absorb the everincreasing Graduate Engineers raises the question of the required manpower need of the Nation in Engineering. Does the Nation, at this stage of her development, need as many Engineers as are being trained?

FUNDING OF ENGINEERING EDUCATION

Government scholarship provided the impetus for graduating the first Engineer of the country (Herbert Macauley 1898). The foray of Herbert Macaulay into politics convinced the colonial masters that engineering was not an appropriate field to train too many indigenes. Thus the subsequent batch of pioneer Engineers were trained exclusively without government funding [2].

The trend continued until independence. The urgent need for massive training of specialist in various field was appreciated by the pioneering leadership of the Federation and the Regions. Huge investment therefore directed in establishing universities and offering scholarships to train Nigerians outside the country.. The resources was relatively better managed, the infrastructures in the first generation universities developed in an impressive manner. Engineering faculties in these Institutions were provided with adequate facilities to train competent hands. The complaints during this era was not lack of facilities, rather it was on underutilization of these facilities based on the restricted admission due to the fund available for running and maintaining these facilities.[8] . The Engineering faculties in the second generation universities were equally provided with good infrastructures and equipment. However, in spite of significant rise in fund allocation to both the first and second-generation universities, it became difficult for these faculties to sustain these facilities and expand them to cope with increasing student populace.

The Universities of Technologies were not as fortunate as first and second-generation universities. Not only were they more capital intensive, the non-willingness of the government to fund the take-off of these universities based on their uniqueness provided basis for their stunted growth. The era of their take-off equally coincided with the devaluation of Naira thus making acquisition of adequate equipment and facilities in sufficient quantity impossible. The Federal Government has continued to provide fund for these universities within the available resources. These fund, enormous as it looks, is barely sufficient to meet the salary need of these universities. The Capital grant meant to equip and expand the teaching and laboratory apparatus and equipment, to provide workshops and necessary ingredient for essential research have been grossly inadequate to cope with the needs of Universities of Technologies (Fig. 3). The fund in qualitative term falls far below the average of £700 – £1000 expended on training universities students in late 60's [9]. The annual budget allocation to education has continued to fall in relative term. This is in spite of the effort of stakeholders to ensure that Government make conscious effort to attain the 26% of budgetary allocation to education as recommended by UNESCO.

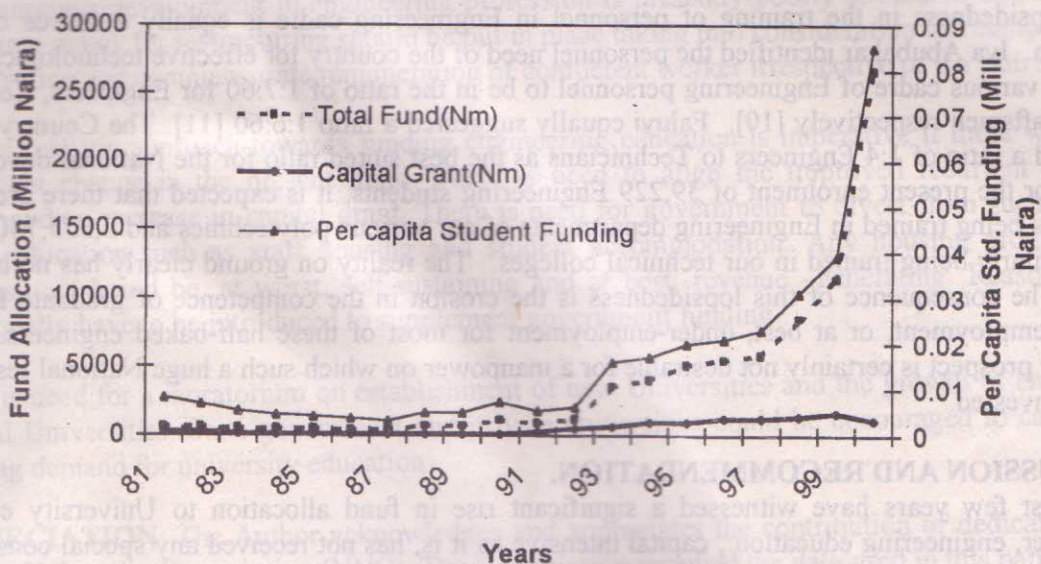


Figure3: Comparative growth of Capital Grant, Total Fund Allocated and Per Capita Student Funding in the Federal Universities. (Source:Academic Planing Unit, NUC, 2002).

The astronomical rate of student growth resulting from the university Administration inability to tie admission to the available facilities and the Nation’s need has continued to erode the quality of training available to Engineering students in Federal Universities in general and Universities of Technology specifically. The general staff: student has shown a steady deterioration over the years with the situation being worse in the Universities of Technology than in the conventional ones (Table I).

Table I: Comparative Staffing Situation and Student Staff Ratio in Nigerian Federal Universities

	1981	1984	1987	1990	1993	1996	1997	1998	1999	2000
Enrolment in Fed. Univ. (000)	74.66	107.90	128.44	149.61	215.78	254.46	260.02	271.72	287.78	312.34
Enrolment in Unitechs	NA	1,872	4,356	8,427	19,767	20,934	25,512	27,954	29,693	29,693
Proportion of Enrolment in Unitechs to the total Enrolment	NA	0.0173	0.034	0.056	0.092	0.082	0.098	0.103	0.103	0.095
Staff Strength in Fed. Univ.	6454	9,253	9,630	10,242	11,157	12,106	13,014	13,100	13,782	15,115
Staff Strength in Unitechs	NA	281	522	676	1115	1245	1658	1593	1634	2047
Proportion of Acad. Staff in Unitechs to the total Acad. Staff	NA	0.030	0.054	0.066	0.099	0.103	0.127	0.121	0.120	0.135
Student Staff Ratio	11.56	11.66	13.34	14.61	19.34	21.02	19.98	20.74	20.88	20.66
Student Staff Ratio in Unitechs	NA	6.66	8.34	12.47	17.73	16.81	15.39	17.55	18.17	14.51

The lopsidedness in the training of personnel in Engineering cadre is equally a source of serious concern. Iya Abubakar identified the personnel need of the country for effective technological growth for the various cadre of Engineering personnel to be in the ratio of 1:7:60 for Engineers, Technicians and Craftsmen respectively [10]. Faluyi equally suggested a ratio 1:6:60 [11]. The Country however adopted a ratio of 1:4 Engineers to Technicians as the best suited ratio for the National development. Thus for the present enrolment of 39,229 Engineering students, it is expected that there are 156,916 students being trained in Engineering departments of our various polytechnics and 2,353,740 students are similarly being trained in our technical colleges. The reality on ground clearly has no bearing to this. The consequence of this lopsidedness is the erosion in the competence of graduate Engineers and unemployment, or at best, under-employment for most of these half-baked engineers. Such a gloomy prospect is certainly not desirable for a manpower on which such a huge National resources is being invested.

DISCUSSION AND RECOMMENDATION.

The past few years have witnessed a significant rise in fund allocation to University education. However, engineering education , capital intensive as it is, has not received any special consideration in fund allocation. The Federal Universities of Technology have the highest concentration of engineering students (64% compared to 25% in first generation and 11% in second generation universities), but the proportion of fund allocation to Universities of Technology falls below the proportion of student enrolment (Fig. 4).

The rise in fund allocation in recent years has been on account of recurrent allocation, which has considerably improved the condition of services of staff. No significant improvement is however noticed in the capital grant allocation.

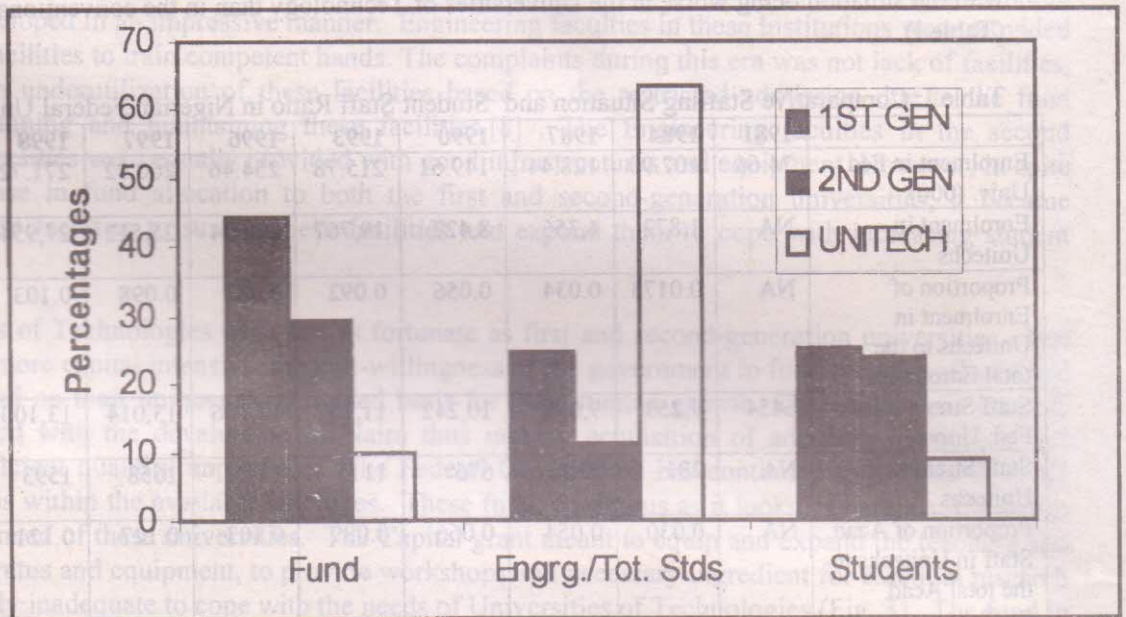


Figure 4: Comparison of Fund Allocation vis-à-vis Student Enrolment for the year 2000. (Source: Academic Planning Unit, NUC, 2002)

This item of funding provides the only avenue for the Universities of Technology to make the desired difference in their training. Not only has the full development of their infrastructure been stalled, the little infrastructure on ground has been extremely overstretched by overpopulation.

The maximum annual fund allocation per student presently stands at ₦32,000.00, enormous as it looks, it falls considerably below the minimum £700 (₦126,000) mark of the early 70's and is grossly inadequate to provide good training for engineering students in Universities of Technology.

The manpower development in engineering profession is presently poorly structured and top-heavy. Deliberate policy for restructuring should be put in place taking into consideration the manpower need of the Nation and commensurate remuneration of competent worker irrespective of the cadre.

A more realistic approach towards funding engineering education is imperative if there will be any significant change in the present trend. There is need to align the improved recurrent fund with corresponding increase in capital grant. There is need for government to divest from such aspect of higher education such as staff housing and student accommodation. Any housing programme by Universities should be, at worst, self-sustaining and at best, revenue-generating. Reasonable fees may equally have to be introduced to supplement government funding.

There is need for a moratorium on establishment of new Universities and the growth of enrolment in Federal Universities. State government and private universities could be encouraged to cater for the growing demand for university education.

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