

The Dilemma of Technical and Vocational Education (TVET) in Kenya

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Abstract

This chapter discusses the concept of technical and vocational education and training (TVET) which refers to a range of learning experiences that are relevant to the world of work and which may occur in a variety of learning contexts. Its goals rest on the assumption that it is more specific to job entry than general education and it is also perceived to be a cure to youth unemployment. In this regard, Kenya as many other African countries has rigorously pursued this policy despite the institutions operating in an environment far removed from the world of work. . There is also still low appreciation of TVET graduates at many levels despite their enormous contribution in the world of science and technology as well as ICTs. In addition the key challenge, which seems to engulf most TVET institutions across the country, is the low funding in comparison with their main requirements for education and training. As a way forward, it is proposed that adequate funds are of critical importance in the development of high quality TVET systems and the achievement of their objectives, hence, there is need to increase funding to TVET institutions.

Key words: Kenya, technical and vocational education, Polytechnics, Institutes of Technology

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Introduction

This chapter discusses the expansion of technical and vocational education (TVET) in Kenya since independence. As a way of understanding key issues in the TVET sub sector it briefly highlights its concept and contextual landmarks and trends in its development achievement and challenges to TVET which include; costs and financing of TVET programmes, access and participation, and quality relevance.

Concept of Technical and Vocational Education (TVET)

In most African countries, Technical and Vocational Education and Training (TVET) refers to a range of learning experiences which are relevant to the world of work and which may occur in a variety of learning contexts, including educational institutions and the work place. It includes learning designed to develop the skills for practicing particular occupations as well as learning designed to prepare for entry or re-entry into the world of work in general (Green et al., 2004). In most cases the learning is intended to or generally lead to direct labour market entry. Most of the TVET programmes are organized as initial vocational training undertaken by youth prior to entering the labour market and in preparation for self-employment in both rural agricultural sector and urban informal sector. In practice TVET also encompasses, “non-formal learning” and “informal learning” occurring mostly through apprenticeship and organized within family lines, but these are usually very difficult to capture in national databases (Green et al., 2004; Oketch, 2007).

The use of Technical, Industrial, Vocational and Entrepreneurship Training (TIVET) in Kenya encompasses technical training institutions, and demonstration centres, youth polytechnics and national youth service skills development centres. TIVET programmes are offered in Youth Polytechnics (YP), Technical Training Institutes (TTIs); Institutes of Technology (ITs) and in National Polytechnics. There are also other institutions that offer TIVET programmes spread across government ministries as well as private institutions. Graduates from TIVET institutions are awarded Certificates and Diplomas in various disciplines. Currently two former national polytechnics; The Kenya and Mombasa polytechnics have been upgraded to university colleges offering degrees in TIVET disciplines, however both institutions continue to offer certificate and diploma programmes.

Goals, types of technical and vocational education and training and curricula Goals and aims of TVET

This section addresses goals and types of technical and vocational education and training rest on the assumption that it is more specific to job entry than general education. It is also perceived to be a

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cure to youth unemployment. It produces specific human capital, which embodies the advantage of imbibing specific job-relevant skills which can make the worker more readily suitable for a given job and would thus make the worker more productive. By providing the youth with pre-employment vocational education and training, TVET in Kenya, like in most African countries, is expected to not only equip the trainees with skills that would be necessary later in the labour market, but also take the youth off the streets. It is also expected to instil technological knowledge similar to what happened in Western Europe during the industrial revolution, followed later by the USA, Japan and lately by South Korea, Singapore and Malaysia. These examples have clearly demonstrated that economic progress heavily depends on technological development (Psacharopoulos, 1997; Tilak, 2002; Sawamura, 2002).

Technical and vocational education and training is not only advantageous in being flexible, but is also seen to offer some hope to academically less able students who are not able to advance through the school system. As everyone can be trained for top level jobs, vocational education and training provides the much needed middle level technicians. Its role in equipping the youth with skills needed in the labour market, vocational education and training is likely to reduce unemployment leading to increased incomes and reduced poverty. Vocational education and training is also said to improve attitudes towards skilled, manual work and thus divert some youths from seeking white-collar jobs that are increasingly in short supply. Above all, economic globalization has not only raised the premium on skills, but has also reinvigorated a need for a fresh look at the nature of vocational education and training (Middleton, et al., 1993). Such arguments in favour of technical and vocational education and training have meant that it is primarily regarded as an occupational education which is terminal in nature.

Furthermore, there are usually widespread and legitimate concerns that the secondary school curricula often lack relevance and utility, and are embedded in the elite traditions of academic schooling unsuited to mass systems. Criticism often focuses on outdated and overloaded curricula, the dominance of examinations and certification in shaping learning and teaching towards narrowly defined outcomes, the prevalence of didactic teacher-centred pedagogy and the problematic nature of supply and demand for more explicitly technical and vocational education. This highlights the need for curriculum reform that can encourage creative innovations in learning and teaching, new methods of assessment capable of capturing valued learning outcomes and selection of content and thinking skills that are more rather than less relevant to entrants to the labour market, and to much broader range of learners (Lewin, 2005).

On this basis and faced with serious school leaver unemployment problem, Kenya like many African governments strongly embraced technical and vocational education and training. Massive support from international assistance agencies was also directed towards establishing and expanding public vocational education and training systems and to legitimize pre-employment training as an important component of public education. The World Bank, for example allocated more than half of its assistance investment in educational systems of developing countries especially in Africa to support vocational education and training. Even as the World Bank's support for education broadened in the mid-1970s to include basic general education, investment in vocational education and training continued to hold a central place in the expanded lending programme (Middleton, et al., 1993).

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Developments in Technical and Vocational Education in Kenya 1964-1979

In spite of strong opposition to TVET programmes in the colonial period, they seem to have expanded instead of declining following the achievement of independence. However, the Education Commission Report of 1964 (Ominde Report) was quite cautious about its expansion. The Commission report noted that it was essential that the provision of TVET should be made according with an anticipated demand on the basis of manpower survey requirements. Excessive expansion of facilities and the numbers of students using them could result in the creation of unemployment among skilled personnel, a development that could be wasteful, humanly frustrating and even politically dangerous, the Commission Report observed. The development of training facilities should therefore keep pace with the general national development without overtaking it. Similarly, the types of training offered should be adjusted to changes in demand due to changing techniques of production. The Commission Report further noted that technical training facilities are usually expensive to provide and skilled teaching staff is costly and scarce. Therefore only a careful rationalization of courses can ensure the most beneficial and economical use of these facilities (Republic of Kenya, 1964).

At the same time, the commission was alarmed by the surging problem of primary school leaver unemployment as a result of the growing expansion of primary education after independence. The Report noted that there were roughly 67,000 out of 110,600 pupils who completed primary schooling for whom there was no prospect for further education or paid employment. The numbers were growing fast and it was estimated that by 1966, they would have risen to well over 150,000, and the need to find meaningful employment was taking on an increasing urgency. The Commission Report therefore strongly recommended the expansion of TVET programmes. It also made a strong case for an education policy that could link to the development concerns of eradicating poverty, ignorance and disease. Consequently it made recommendations for the conversion of the then Government Trade Schools to Technical Secondary Schools to prepare graduates to enter Technical and Vocational Education and Training (TVET) after graduating from secondary schools (Republic of Kenya 1964).

In tandem with the developments in Kenya, on the international scene, the growing youth unemployment, especially of primary school leavers, provided a favourable context for a worldwide interest in non-formal education, then defined as 'any organized systematic educational activity outside the framework of the formal school system to provide selective types of learning to particular subgroups in the population, adults as well as children' (Ahmed, 1983). The interest was particularly sparked off by the publication of *The World Educational Crisis: A Systems Analysis* sponsored by the World Bank. The crisis was in the formal education system. Both UNESCO and the World Bank started pushing for Non-formal Education (NFE) as a solution to the problem of school leaver unemployment. Interest in non-formal education arose originally from a growing awareness of the complexities of the connection between education and development and as it became evident that linear expansion of formal education was not the way to meet the demands of both quantitative expansion and qualitative change in education. The proponents of non-formal education, by reviewing and analysing past experiences and by looking at the possibilities, presented an optimistic view. They saw in non-formal education, the potential for efficient use of scarce resources, expansion of educational services, promotion of equity in educational

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opportunities and the enhancement of the relevance of education to the demands of socio-economic development (Bhola, 1983).

The case for non-formal education therefore seemed compelling. It was seen by some educational and development elites as the only mechanism for the expeditious and timely delivery of educational inputs to those who needed them, when they needed them and where they lived and worked. Non-formal education was seen as an appropriate education-responsive, immediately usable and, in terms of economic returns, highly attractive. Many non-formal education programmes were launched in the region especially by Non-Governmental Organizations. The most prominent ones were however, in Kenya and Botswana with the National Youth Service (NYS), the Village Polytechnics and the Brigades.

The National Youth Service in Kenya was started as a scheme to mobilize the unemployed out-of-school youth. The service was established in 1964 for the youth between 16 to 30 years. The objective of the National Youth Service (NYS) was to place such people in an environment which would inculcate good citizenship and provide an opportunity for education and training that would make them productive, skilled workers or farmers. Through such a programme they were expected to contribute directly to the economy of the country, by helping to conserve, rehabilitate the country's natural resources while in the service and to enhance their opportunities for continued productive employment, primarily in the rural economy, after they left the service. The original motivation of the programme was to keep unemployed young people off the streets. Consequently the recruits were mainly primary school leavers.

The recruits followed full time residential programmes lasting one to two years, usually combining occupational training with recreational and cultural activities and general character training. They worked on road constructions, cleared bush, constructed dams, houses, and operated as security units. Many of the servicemen were placed in paid employment. It should be noted that although NYS courses provided for some agricultural training, their main emphasis were on urban skills. The capital and recurrent cost of the scheme per trainee were extremely high, more than three times, the general cost of a secondary school graduate. This was largely because they offered boarding facilities, uniforms and others. Much of the funding for the scheme was through external aid. Although on the whole, the scheme was successful, its impact on occupational training and youth unemployment was marginal since it recruited a very small proportion of the school leavers.

Efforts to tackle primary school leaver unemployment also attracted the attention voluntary agencies. Among such agencies was the National Christian Council of Kenya (NCCCK) which launched the Youth Polytechnics (YP) movement. The village polytechnics now known as youth polytechnics started in a slightly different fashion from the NYS, but also responding to the critical problem of primary school leaver unemployment. The village polytechnics, unlike the NYS with its boarding and accommodation, country wide recruitment and formal provision of resources geared to employment, the architects of the village polytechnics were anxious to avoid formalization. They wanted small, flexible and localized institutions aimed at community needs. The polytechnics were to provide skills in response to local needs and combat students' temptations to seek wage employment in the urban areas. These institutions avoided certification and were of low cost. Nevertheless studies which were later carried out on the village polytechnics expressed alarm at the growing formalization tendencies of these institutions (Court, 1974).

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What was obviously clear from these programmes is that they affected only a relatively small proportion of the eligible out-of-school youth population. The youth polytechnics which like NYS which grew to over 200 centres around the country, making it an extensive national programme, only catered for 7 percent of the total number of primary school leavers. As the government generally focused its attention on TVET within the established education and training system, it also began to respond to the need for industrial development. In this regard, the 1972 Industrial Act resulted in the establishment of the Directorate of Industrial Training (DIT), the National Training Scheme, and the Industrial Levy. It was envisaged that these moves would strengthen and encourage cooperation between industries and the National Industrial and Training Centres.

In the meanwhile, the school leaver unemployment problem was increasingly replicating itself at the secondary school level. Following the rapid expansion of secondary education which led to an increasing number of secondary school leavers who could not readily get employed, an important area of intervention to enhance employment opportunities following growing numbers of unemployed youth was the diversification of secondary schools. In Kenya as in many African countries in the 1970s, secondary education expanded more rapidly than wage employment and access to postsecondary education, leading to high rates of unemployment among the educated youth, whose aspirations it was believed made them reluctant to accept blue-collar employment. This led policy makers in Africa and other less industrialized countries to question the relevance of the curriculum of the academic secondary school for those graduates who did not enter the university. Because university and secondary school graduates were among the unemployed, many planners believed that an academic education alone, was an insufficient preparation for employment. In addition, many people believed that academic education led to a disdain for manual labour, and thereby exacerbating the difficulties of absorbing school leavers into the workforce. Academic secondary schools would thus be diversified in an attempt to equip students with practical skills-knowledge of how to make or do things and create positive attitudes towards blue-collar work (King, 2005).

Donor agencies assumed a lead in the policy intervention by setting an agenda for educational initiatives to combat unemployment among primary and secondary school leavers in Africa for the 70s and 80s. Their concern was, however, not to improve the economies of the aid recipient countries *per se*, but to export their technology (Sawamura, 2004). The World Bank for example, constructed workshops and provided equipment for diversified secondary schools in many African countries. The Swedish Development Authority (SIDA) responded to Kenya's ambitious programme to expand technical secondary schools, with a programme which involved building new workshops, equipment laboratories in all the 13 technical secondary schools in addition to building two new ones on green sites. It also supported the introduction of industrial education in 36 public academic secondary schools. The Canadian International Development Agency (CIDA) responded to the expansion of technical education in Kenya with a plan, which included a building complex, scholarship scheme for Kenyanisation and a technical package.

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Apart from diversified secondary schools, in practically all the countries of the region, the early 1970s witnessed a rapid expansion of vocational and technical training institutions as a response to the unemployment problem. Providing vocational and technical training was often posited as a cure for the large scale unemployment of young people that is a widespread and persistent social and economic problem. The logic assumed that young people cannot find employment because they do not possess the specialized skills required either by employers or for successful self-employment (Sawamura, 2002). Occupational training, it was reasoned, would therefore enable some significant proportion to obtain employment.

The phenomena of expanding vocational and technical training was however, most spectacular in Kenya in the early 1970s. The country was locked up in a fund raising campaign to launch Harambee Institutes of Technology (HIT). The launching of the institutes seemed to be a direct response to the growing problem of unemployment among secondary school leavers. There was great concern over the failure of secondary education to equip those leaving school with the necessary skills required in the labour market, especially in the area of technology. Political leaders therefore, went ahead to organize fund-raising meetings to solicit money from the community to start institutes of technology that would offer similar courses to government technical institutions. In an effort to respond to the demand for technical teachers, formal training was started at the Kenya Polytechnic and the Kenya Science Teachers' College. Other institutions for training TVET teachers included Egerton and Kenyatta universities. It is also important to mention that some ministries and parastatals were engaged in TVET to meet their own specific needs.

As these developments were taking place to diversify the academic secondary curriculum and expand technical education, by the mid-1960s, there were already warning bells about the usefulness of diversified secondary education in combating unemployment. Some studies on agricultural high schools in West Africa had demonstrated the value of academic secondary education in helping students to find wage employment in economies dominated by public employment, as well as the failure of agricultural schools to divert students from aspiring to employment in the modern sector. These phenomena came to be known collectively as the "Vocational School Fallacy" (Foster, 1965). The experience of diversified schools in Tanzania and Columbia also seemed to indicate that diversified education did not provide students with any significant advantage. Students from diversified schools were no more likely than students from academic or vocational schools to find employment upon completion of school or obtain higher paying positions. Students from diversified schools were as likely to go to university rather than go to work as were graduates from academic schools. Those who joined universities often studied subjects that had no relation to the diversified courses taken in the secondary schools. It was also revealed that because of the need for special equipment, and specific training for teachers, diversification was the most expensive form of secondary school in both countries. It also proved to be a much more difficult programme to implement. Evaluation in other countries corroborated the findings in Tanzania and Columbia. Evaluations in Kenya showed very little labour market advantage for students who took industrial courses in academic secondary schools. Nor did these students in Kenya enter self-employment (Pscharopoulos and Loxley, 1988; Lauglo and Narman, 1987).

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Developments in Technical and Vocational Education 1980-2000

Even with the above findings about diversified secondary education, the Kenya government seemed undeterred in its vocationalisation efforts. This was seen as a good programmes in addressing the school leaver unemployment problem. In 1981 the Government made pronouncement that the country was to start preparations to move from the 7-4-2-3 nomenclature to an 8-4-4 education system. The pronouncement was prompted by the proposal made by the Report of a Presidential Working Party on the Second University in Kenya. The Working Party, whose terms of reference were to examine the feasibility of establishing a second university addressed itself to the need to restructure the school system for among the reasons which sounded largely political. The “A” level component in the old education system was accused of not favouring students from marginalized regions in accessing higher education. It however, also appreciated the Report of the National Committee on Educational Objectives and Policies (NCEOP) reasoning that primary school leavers should acquire some basic skills in addition to numeracy and literacy skills to achieve that it was considered necessary that the primary school segment should take a longer duration. The Working Party Report therefore recommended that in order to streamline the education system of the country as a whole, primary education should be extended from seven to eight years. The eight-year primary education was to be restructured to offer numeracy and literacy skills in the first six years and a basic education with a practical orientation in the last two years (Republic of Kenya, 1981).

In launching the 8-4-4 education system, the Ministry of Education, Science and Technology provided the rationale for the new system, which among others included the *need for a more relevant curriculum*. It was argued that the education hitherto followed in the country did not cater for the greater number of pupils enrolled, and therefore the importance of providing a practical oriented curriculum which offers a wide range of employment opportunities. It was noted that the 8-4-4 system with its emphasis on technical and vocational education, would ensure that students graduating at every level had some scientific and practical knowledge that would be utilized for self-employment, salaried employment or further training (Ministry of Education, 1984). Through political pressure on parents, funds were raised for the construction of extra classrooms, home science rooms and workshops for primary schools in some parts of the country, which contributed to the successful launching of the new system. However, challenges relating to the provision of equipment, teaching and learning materials including the training of TVET teachers continued to bedevil the system leading to the abolition of teaching vocational subjects after a few years of operation of the new education system. Challenges in the logistics of teaching vocational subjects prevented implementing a TVET curriculum in the entire secondary school level beyond the few existing diversified secondary schools including some which offered instructions in industrial education.

Following the disappointing results of the diversified secondary schools, they were transformed into technical institutions. In Kenya all these schools were renamed technical training institutes (TTIs) and now were playing a similar role to the *Harambee* Institutes of Technology. Private institutions are also engaged in TVET and vary in degree of capacity and competence. They offer courses in such fields like secretarial, accounting, ICT, purchasing and supplies, clothing and textiles, catering and institutional management and engineering. Consequently, after the high

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enthusiasm for TVET programmes through the sixties, seventies and early eighties, the nineties and turn of the century were followed by government inertia in TVET which persists to the present.

Developments in technical and vocational education 2001-2012

Compared to other education sectors, it can be argued that recent reforms in the TIVET sector though urgent have been at a much slower pace than in other sectors of the education system. As it was the case with other subsectors of education the new government, coming into power after 2002 general elections, committed itself to reviving and accelerating TVET programme. The subsector was seen as key in accelerating economic growth. To address some of the underlying causes of the restlessness among youth, and as part of the investment within the framework of the Kenya Education Sector Support Programme 2005-2010 (KESSP), the government sought to revamp the TIVET sector. Innovations in TVET were also articulated in the Sessional Paper No. 1 of 2005. This was intended to offer learners equal opportunities to advance to the highest level of learning either through the academic or TIVET channel.

In March 2008 and in response to the need for a policy framework, and the development of a national skill training strategy; the government published the National TIVET strategy to provide direction, policies, initiatives and programmes for quality, inclusive and equitable technical, industrial, vocational and entrepreneurship training responsive to the requirements for regional and global competitiveness. But a comprehensive TIVET policy as envisaged in the Session paper, though developed had not been enacted upon by parliament by 2011. The draft National Training Strategy recommends the creation of a TIVET Service Commission, a TIVET authority and a TIVET fund. Similarly, a TIVET draft Bill was pending before parliament in the course of 2011. In the absence of an enacted new legal framework a letter of interim authority had been issued to the Ministry of Higher Education, Science and Technology to set up the secretariat of TIVET Authority to increase Access to TIVET institutions. The Technical, Industrial Vocational and Entrepreneurship Training Bill published in 2007 as an Act of parliament proposed to promote and develop the TIVET system, to provide for the improvement of governance and management of institutions offering TIVET and to facilitate the regulation of curriculum development, training, assessment, examination, certification and all matters relating to access, equity, standards, quality and relevance of TIVET in Kenya'. The bill proposed setting up a TIVET authority to provide governance and curriculum reforms direction in the sector. The Bill also proposes a harmonized education and training system, structured into basic education comprising 14 years (2years pre-primary, 8 years primary and 4 years secondary), and higher education and training which consists of TIVET diploma; undergraduate; and postgraduate (Diploma, Master's and Doctoral) programmes. However, these structures are still being set up and implementation of the proposals contained in the session paper has been slow (Republic of Kenya, 2008).

In the absence of a finalized TIVET policy framework as envisaged by Sessional Paper of 2005, the TIVET sub-sector continued to face challenges revolving around inadequate access and equity, limited physical infrastructure and equipment, high poverty levels, low public image of TIVET, inflexible curriculum, unequal distribution of TIVET institutions and cultural barriers, weak governance and management, lack of legal instruments for governance, quality assurance,

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standards credit transfer and accreditation, low utilization/ integration of technology (ICT), lack of a culture for production underutilization of ICT tools in the TIVET system, and a weak mechanism for generation and utilization of resources by TIVET Institutions. The government however, since 2005, tried to implement the following interventions to increase access to the TIVET sector:

1. TIVET Bursaries; the programme provides bursaries to needy, vulnerable, and disadvantaged and HIV/AIDS orphaned students in TIVET Institutions.
2. Rehabilitation of Technical Institutions;
3. Establishment of Centres of Excellence; the sub-sector has identified 11 centres of excellence among the Technical Institutions and has already started disbursing funds to the identified 11 institutions. These institutions will require Ksh.1 billion to equip them to the required levels.
4. the upgrading of Kenya Polytechnic as a constituent of Nairobi University and Mombasa Polytechnic as a constituent of Jomo Kenyatta University, allowing them to offer TIVET degrees;
4. Provision of funds to students in need countrywide to enhance access, retention and quality in public TIVET programs. The target groups include orphaned children, children from poor households and persons with special needs. In 2006/2007 a total of 1,570 trainees in TIVET institutions were awarded bursaries, while 5,056 and 8,055 benefited in 2007/2008 and 2008/2009 respectively, an upward trend in the numbers of trainees benefiting from the bursary programme; and
5. Identification of eleven centres of excellence among the existing technical institutions for purposes of making them centres of excellence. The centres of excellence will be funded to buy modern equipment at a cost of Ksh 79 million. Policy guidelines on the creation of industrial incubators have been developed (Republic of Kenya, 2010).

Despite the lofty policies TVET programmes have on the whole been experiencing a very serious decline with a good number of institutions being transformed into higher education colleges and universities by the Kenya Government. This has been particularly so with the Institutes of Technology and the National Polytechnics in the last several years. This strategy started in 2004 with the transformation of the Western College of Science and Technology in Kakamega becoming a constituent college of Moi University and trend contributed to the transformation of Kimathi and Murang'a Institutes first into constituent university colleges of some public universities followed by becoming full-fledged universities. The Kenya and Mombasa Polytechnics became university colleges of public universities and now they are the Kenya Polytechnic University and the Coast Technical University respectively. There was also the transformation the Kenya Communications College at Mbagathi into the Kenya Multimedia University. This has an important bearing on the training of artisans and technicians for the country's economy in future which might force it to import them from India and China. The government needs to resist the temptation of the "university degree syndrome" which has engulfed much of the Sub-Saharan region.

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Costs and financing of TVET

In many parts of the world, TVET programmes are more expensive than general education. This is largely because TVET courses require special physical infrastructure, equipment and instructional materials. For example, a survey carried out by the Ministry of Research Technical Training and Technology (MRTTT) in 1993, estimated the annual unit cost of a National Polytechnic student to range from Kshs. 40,000-60,000, while at the TTIs and ITs, the corresponding cost range was Kshs. 20,000-26,000. The average government expenditure per student then was Kshs. 13,550, leaving a large balance to be met from user fees and other sources. At the time annual user fees ranged between Kshs. 5,000-10,000 in YPs while National Polytechnics, ITs and TTIs was Kshs. 30,000-50,000, which in these categories of institutions excluded boarding fees. As a result of inflation, these fees did not cover the gap between the desirable unit cost and the government grant. Such sources as income generating activities were not raising enough money to help cover the balance. Consequently, most institutions were ridden with huge debts, estimated to be around Kshs. 5 million at the Kenya Polytechnic and over Kshs. 21 million in TTIs (Republic of Kenya and UNICEF, 1999).

In addition to fees paid to institutions, students have to pay for textbooks and instructional materials such drawing instruments stationery, expenses such as transport between home and institutions, medical cover, public examinations and recreation. Such costs are expected to be met parents, which are by far higher than the incomes of most households. In order to cut down on the costs, many students do not purchase some of the textbooks and instructional materials, and hence largely depend on lecture notes and whatever reading materials their impoverished institutions can provide. As a high proportion of households are not able to afford the fees and related expenses sending their children to TVET institutions is not a possible option even when they are qualified for admission.

The basic problem in funding for TVET programmes is that since independence, they have experienced resource constraints largely because a bulk of public funding has been channelled towards general education as compared to TVET programmes. However, while the TVET sector has benefitted considerably from external bilateral and multilateral organisations, especially through projects aimed at the development of infrastructure, equipment and staff development, since the late 1980s, funding from such external sources has greatly declined. External funding has concomitantly declined as public budgetary allocation has also become increasingly inadequate for the needs of TVET institutions. Public funding for NPs, ITs and TTIs is largely channelled towards instructors' salaries, leaving a negligible proportion for other essential inputs. The instructor's salaries are estimated to be more than 90 percent of the annual allocation. There is an additional public budgetary expenditure which meets the salaries of non-teaching staff employed by the Boards of Governors (Republic of Kenya and UNICEF, 1999).

Access and participation in TVET

In terms of participation, the size of the group of school leavers who normally get some post-basic training, whether in public or private sector formal or informal training institutions, is difficult to determine in Kenya as in many African countries. However, a World Bank study is cited to imply that this is a rather small segment of the entire cohort, perhaps as small as 5 to 10

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percent, and it is argued that the bulk of the small percentage is in private or non-government provision (King, 2005). Therefore, TVET occupies a small and marginal position in the school systems of most African countries. However, there are problems of limited research and data collection at the national levels in most countries (Atchoarena and Delluc, 2001).

There is also a further problem, which arises from the fact that much of the private provision and even some of the public TVET provision is not captured in the national data collection, especially following the privatization of many of the programmes to generate more funds. On the overall, however, there appears to be a decline in the share of TVET enrolments as a percentage of general secondary education students. There are indications that most of the TVET institutions that still exist, including youth polytechnics, are under-utilized, having about only 10-25 per cent of students. This is because of uncertainties in the effectiveness of TVET in matching requirements of the labour market. There exist among the public a perception that heavy investment in such institutions is not making economic sense to households and individuals trainees. In addition, there is an expanded secondary education offering general academic education.

Furthermore, the perception that TVET will help in solving labour market problems has become untenable as countries such as Kenya, which vigorously pursued this policy as already discussed have realized that it does not create jobs and rural poverty has increased as urban migration unemployment has also continued to rise. There is also the issue of high cost in TVET in terms of the skills imparted and the returns on investment which are estimated to be quite low, particularly in some African countries in which production is still mainly related to low technology and semi-processed products. Hence, more and more families tend to see higher returns not for those who participate in the marginalized or survival driven informal sector, but in general academic skills and knowledge that is useful both nationally and internationally (Oketch, 2007).

In terms of provision, for many years, the state has dominated the TVET field in Kenya. However, over the years since independence, private provision has been steadily growing. This has happened as state provision has either found it increasingly difficult to expand and cope with increased demand for education or state capacity to monopolise the provision of education in the light of seriously weakening economies as well as growing demands in other sectors has witnessed sharp declines. This has also affected the provision of TVET.

Research in different patterns of provision seems to show that private provision of TVET is growing rapidly and even appears to dominate in Kenya as in some of the African countries. Such private provision is heterogeneous with key aspects such as legal status, ownership, objectives and financing being difficult to establish. Most of the private providers offer courses with a high concentration in commercial trades, although there are also a few cases which offer programmes in technical areas. Furthermore, private providers have the benefit to tailor their courses to the demands of the labour market and seem to be flexible in changing them in response to the demand (Atchoarena and Delluc, 2001). In particular, there has been a rapid growth in the provision of ICTs.

On the whole, despite the increasing role of private provision, there is serious and declining participation in the traditional TVET secondary education programmes. This can be

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attributed to growing disenchantment with the usefulness with this type of education as well opportunities for higher education. On the aggregate, there is a general lack of progression to higher education and even chances for employment after completion; and the lack of job enhancement by skills offered by TVET institutions for those who enrol. TVET which assumes to offer better employment opportunities as a result of its special skills ends up leading to a dead end or quandary. This tends to make it equally undesirable to most of the youth and their families. However, there is still strong competition between general academic education and TVET to the extent that parents and the youth are prepared to go an extra mile through various means to get progression to the former. There is however, the general perception that those who enrol in the latter are supposed to be failures in securing a place in the general academic education programmes (Atchoarena and Delluc, 2001).

The situation is even more critical for women entrants in TVET who for a number of reasons face more difficulties in accessing secondary education than men. In this regard, gender inequalities that have persisted in the general education systems are more prevalent in the TVET programmes. In cases where the situations seem to have improved in terms in female participation, they are usually relegated in related traditional gender-biased programmes such as secretarial studies, home science which includes such courses as textiles and the like. In many countries the proportion of girls enrolled in TVET has hardly reached percentages close to 50 percent (Atchoarena and Delluc, 2001). It however, needs to be acknowledged that with introduction of ICTs have provided a lot of opportunities for increased women participation.

Although there are not many researches in this area, possible reasons for low women participation however, include, the traditional streaming of girls out of the vocational training which includes employment, industrial and urban oriented programmes, the traditional male dominance in the field, the gender stereotypes of desired male and female occupations, the macho environment of vocational trades and parents' attitudes towards girls' vocational training. Other possible explanations may be economic especially the perceived low return from vocational training as opposed to other opportunities, lack of girls exposure to technical/craft skills, ignorance of vocational opportunities, particularly in the rural areas, and the opportunity cost of girls' labour or early marriage (Mbughuni, 1991).

Furthermore, among the key reasons for women's low enrolment in TVET is the fact that few of them perform well in sciences and technical subjects at secondary school level. Women are not only under-represented in the science subjects at the secondary school level, but they also perform poorly in them in the national examinations. There is also a tendency for many women to resist taking up technical training due to gender stereotyping. They suffer from deeply-rooted socio-cultural norms and ideals for male and female behaviour, with girls thinking that technical education is a "male" field; hence they have little confidence to pursue it or are afraid of getting dirty. Such gender stereotyping is reinforced rather than broken in the earlier educational levels. Gender stereotyping often contributes to gender streaming. Girls generally tend to concentrate in the so-called "soft" trades or fields. Girls are thus not only streamed into the traditionally feminine trades and fields, but are concentrated in trades with low technology and or low employment opportunities. In some institutes, tailoring is taught on domestic machines with no design/cutting training. In the polytechnics and related institutions, women's reasons for choosing fields such as

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electronics, laboratory technician and electrical engineering is that they are “soft” subjects that do not require physical strength.

After admission, women face greater chances of non-completion of technical and vocational courses. Although hard data on the situation in many countries is hard to come by, a related study in Tanzania indicated a higher drop-out for girls (Lauglo, 1990). Another study showed 14 per cent for boys and 17 per cent for girls (Mbughuni, 1991). Among the possible reasons for dropouts include: dissatisfaction, misplaced expectations, and pregnancy, harassment and academic problems. The main reasons seem to centre on socio-cultural factors and not their academic ability. The Lauglo study also asserts that girls are more likely to drop out in courses where they are a minority. More often, however, the field or trade being taught seems to have a higher correlation to drop out rates than the percentage of girls in class (Mbughuni, 1991).

Quality and Relevance of TVET

The influential World Bank sector policy paper on TVET, which was published in 1991, argued forcefully that public sector TVET in most developing countries is usually poorly planned, managed and resourced. This result in low quality, but high cost provision, namely; low internal efficiency, coupled with often limited skills utilization among trainees once in employment, which is low external efficiency (World Bank, 1999).

One of the biggest challenges for the quality and relevance of TVET in Kenya and the African region in general seems to be the perception of its low status by learners, parents, employers and policymakers. The problem has its roots in the colonial system, where academic education was the route to modernity, social status and prosperity. This was more pronounced in white-settlers dominated countries such as Kenya, Zimbabwe, South Africa and Namibia, where it was a deliberate policy to limit African access to academic education during the colonial period, thereby building strong demand for it. Although the economic rationality of such a position seemed to diminish with post-independence expansion of education, amid slow economic growth, a strong legacy for academic education versus technical and vocational education and training had been established.

Focusing on the funding of TVET sheds some light on the dichotomy between the emphasis for skills and the limited funding that governments are willing to commit to the sector. Furthermore, the international pressure on countries to meet their EFA goals by 2015 has actually meant that more resources have shifted, both within national budgets and international aid assistance to Universal Primary Education (UPE) and at the same time the rhetoric over skills and the value of TVET, which seems to continue. Generally, TVET is expensive since materials and equipment are usually expensive, especially in the technical subject areas as they are reliant on costly infrastructure and require low learner to instructor ratios. It was on the grounds of their low rates of return and high cost that many agencies have justified their reduction of support to TVET systems since the beginning of the 1990s. Adequate finance is crucial to the development of high quality TVET systems and for the achievement of many elements of its transformation agenda. However, many TVET systems and sub-systems in the region remain highly dependent upon state funding. Such dependence is quite problematic as TVET continues to be accorded a low priority among the conflicting demands on the budgets of most countries (Republic of Kenya and UNICEF, 1999;

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Oketch, 2007). Since the 1980sbudgetary allocations have become quite inadequate for the needs of TVET.

As a result of under-funding, TVET institutions experience inadequacies in the provision and maintenance of physical facilities which include classrooms, lecture theatres, workshops and laboratories and training technologies. There are also inadequacies with regard to boarding and catering amenities. Furthermore, most of the facilities are old and in need of repair. For most TVET institutions, the YPs are the most underprovided with infrastructure and equipment. Most of them undertake their training in the open shade or semi-permanent structures and lack boarding facilities. The TTIs, ITs and NPs have better facilities and equipment. However, the training technology in most TVET institutions is obsolete as compared to what is in use in industries. What is also important is the non-availability of some consumable training materials. These inadequacies exacerbate the mismatch between institutional training and the requirements of industry (Republic of Kenya and UNICEF, 1999).

There are also serious problems of understaffing with large instructor student ratios being extra ordinarily high. In general, ITs and TTIs with ratios which are close to the official establishment. NPs try to make up for the shortages through the employment of part-time lecturers for most of their evening programmes, with salaries met directly from fees paid by their students in the programmes. Many TVET institutions are understaffed due to poor remuneration and conditions of service. To a large extent staff shortages in TVET institutions arise from their inability to attract qualified and competent personnel who readily find greener pastures elsewhere in the economies. Apart from the National Polytechnics, terms and conditions of service play a negative role in attracting qualified instructors. There are also frequent requests for transfer from ITs and TTIs which are generally under provided with basic facilities such as electricity and staff housing. YP instructors in particular do not have a scheme of service under the Teachers' Service Commission and are remunerated under uncertain terms agreed by the institutions' management committees. Many of the YP instructors mainly possess craft level qualifications and lack teaching skills (Republic of Kenya and UNICEF, 1999).

One of the most common criticisms of the public TVET is that it has curricula that are out-dated in terms of learning theory and relevance to industry. Supply-based systems which are applied in the majority of TVET institutions follow academic programmes whose performance criteria are determined by the educational system itself and not by the demands of the production sector or by students' need to find a place in the job market or in society. Much of the instruction provided, including vocational and technical training, bears no relationship to the needs of employers. Programmes are excessively long and inflexible. Theoretical classes bear no relation to the practice and are geared more towards getting ahead within the system than to satisfying the needs of the job market, which is an attitude in keeping with the assessment criteria defined from the supply side itself. The rigidity of these systems and the emphasis on performance for internal progress mean that students are poorly suited to meet the changing needs of the job market (Labarca, 1998).

On its part the industry or production sector it finds itself in a difficult situation to convey its requirements, primarily because, despite the existence of critical demands for skills, employers do not have instruments for formulating them or the organizational channels for

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communicating them. The kind of qualifications required in modern technology are quite complex and imply new methods of organizing work and are changing very fast as a result technological innovations and the importance attached to international competition. The supply and demand imbalance in basic education and in technical and vocational education and training institutions often lead to waste and hence to a by no means negligible loss of resources. Policies for overcoming such imbalances need to address two problems, namely; defining what has to be taught, and accomplishing this at the lowest possible cost. Demand-based systems seek to adjust and correct supply. Policies which favour demand, through consumer subsidies or other similar instruments, seek to increase its quantity through market pressures (Labarca, 1998).

An important expectation through the inculcation of TVET skills is that it should lead to increased salaried employment of its graduates. To some limited extent this has occurred in many countries. However, just like increased unemployment of general academic education, a large proportion of successful TVET trainees are unable to obtain salaried employment in Kenya as in many African countries. Among the main reason is that there is a growing mismatch between institutional training and suitable opening in the labour market. First, there has been a tendency to put more premiums on skill formation through formal training, largely as a way of satisfying social demand and not as a response to actual opportunities in the industry. Second, largely owing to general poor achievement in secondary schools in science subjects and mathematics, demand for training in strictly technical areas such as engineering is relatively low. Candidates for TVET tend to be concentrated in courses where entry criteria do not require more than an average school achievement in languages and humanities. Such concentration has swamped the labour market leading to serious unemployment. Furthermore, there are growing concerns among employers that formal training is too theoretical rather than practical and therefore not inculcating the skills valued by industries. This situation is also partly attributable to the mismatch between the out-dated technology in training institutions and the more modern technology in industries and the growing distance between training institutions and industries, especially with regard to the on-the-job development of training staff. Teaching staff in TVET institutions is in danger of becoming obsolete in terms of contemporary industrial knowledge and skills because of growing isolation from industry and practitioners elsewhere (Republic of Kenya and UNICEF, 1999).

There also seem to be a number of challenges with the assessment of students towards the end of their courses. In accordance with the Sessional Paper No. 6 of 1988, TVET examinations and certification should be the responsibility of the Kenya National Examinations Council (KNEC). However, as a result of the historical legacy, in practice other examinations bodies are involved in the examinations of students in TVET programmes. Courses, especially in private institutions are examined and certified by a variety of private bodies including foreign ones. Some courses in TVET institutions are not examined by the KNEC. For example, at the artisan level, *Jua Kali* (informal sector) and some YP trainees prefer to take trade tests conducted by the DIT and in some business opt to sit for examinations offered by the Kenya Accountants and Secretaries National Examinations Board (KASNEB). While the variety in the examining bodies give institutions and trainees some flexibility in that lengthy mandatory attendance durations are not required by some of the bodies, as it is normally the case with the KNEC, it raises key issues

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with regard to the comparability of standards across the certificates issued by different bodies, which means difficulties in rationalizing assessments across the TVET sector (Republic of Kenya and UNICEF, 1999).

Summary and Conclusion

Among the key challenges of TIVET which have been highlighted is that public institutions still operate in an environment far removed from the world of work, while key institutions such as the national polytechnics have been turned into university institutions. There is also still low appreciation of TVET graduates at many levels despite their enormous contribution in the world of science and technology as well as ICTs in the ordinary lives of the public. Curricula and duration of some programmes in many TVET institutions do not always meet the expectations of the graduates with regard to the skills they inculcate. Another key challenge, which seems to engulf most TVET institutions across the country is the low funding in comparison with their main requirements for education and training. A greater proportion of the recurrent allocations in the sector is devoted to the payment of salaries with very little allocation to teaching and learning materials. This largely contributes to lack of infrastructure and equipment. Most of the laboratories and equipment are obsolete as many public TVET institutions cannot afford modern state-of-the-art technology which many industries in the country normally utilize. It has generally been difficult for the institutions to tailor their programmes to meet the rapidly changing needs of employment largely due to the high costs of providing new equipment and increased demand-driven training. Poor funding also affects the retention of qualified and experienced staff who get attracted to well-paying jobs in the industries. The terms and conditions of service for staff in the institutions have not yet been standardized at an attractive level.

As a way forward, adequate funds are of critical importance in the development of high quality TVET systems and the achievement of their objectives. There is need to increase funding to TVET institutions. Levies could be an important source of funding for training and various modes need to be planned. Levies could generate large amounts of money in the country, especially with a relatively large formal sector. There is also the need for fund raising through the sale of products and services. Training with production could be given greater emphasis without compromising the training component. There should also be opportunities for provision of training at full cost for employers, through the delivery of short courses tailored to their needs.

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