CHAPTER 8 MANAGEMENT ISSUES IN HIGHER. TECHNICAL ND VOCATIONAL) TRAINING

The rapid increase in primary and secondary enrollment is forcing the accelerated development of the higher education, technical education and vocational education and training subsectors. The way they are currently managed will be decisive in determining their ability to develop smoothly and efficiently, to adequately cater for the growing number of students in a way that responds both to individual needs and to the economy's requirements.

The analysis of these levels faces two major constraints: (i) the lack of adequate data; (ii) the absence of standardized tools/norms, due to the complexity and heterogeneity that characterizes them.

This chapter therefore adopts a more qualitative approach, reviewing aspects pertaining to institutional arrangements, quality assurance processes, financial management, the management of access and equity issues, and human resource management. These issues are dealt with in two broad sections, successively dealing with higher education, and technical and vocational education and training. Aspects pertaining to enrollment and financing of education have already been addressed in Chapters 2 and 3 respectively.

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Institutional Arrangements

In order to promote more integration across education subsectors, the higher education sector was integrated into MoEVT in 2008, as part of the reorganization of the Ministry of Higher Education, Science, and Technology. The subsector is governed by two acts: the University Act of 2005 is the legal framework for the development and management of universities, 178 and the Higher Education Student Loan Board (HESLB) Act of 2004 determines student financing mechanisms.

Under the University Act, in addition to paying the staff, MoEVT provides policies on running universities (both public and private), and supports public higher learning institutions (HLIs) with other expenses and development funds.

Each university has its own charter and strategic plan, related to the Higher Education Sub-Master Plan, 2003-18. There is no mechanism in place however to make HLIs accountable for the resources they receive. The recently updated Higher Education Development Programme, based on the Master Plan, is used to further guide the development of the sector, aiming to ensure that: (i) appropriate institutional reforms are carried out for a comprehensive and coordinated higher education system; (ii) service delivery is improved through improved access, quality and relevance of teaching; and (iii) human, financial and environmental sustainability mechanisms are implemented (HEDP, 2010).

With the growing number of HLIs, particularly privately owned ones, and the internationalization of higher education, it became necessary for Tanzania to strengthen its regulatory body and ensure it complies with current quality assurance requirements.¹⁷⁹ The Tanzania Commission for Universities (TCU) was established under the Universities Act of 2005 for the supervision of universities and university colleges, in replacement of the Higher

Education Accreditation Council. The commission is a parastatal agency, governed by thirteen members appointed by the minister of education, and is responsible for the establishment, registration, chartering, quality assurance and accreditation of universities and university colleges. All other HLIs fall under the regulation of the National Council for Technical Education (NACTE).

Given this panorama, it appears that the existing policies and regulatory body provide a sufficient, solid and modern institutional framework for the system to build upon for its future development. A couple of limitations do however exist: (i) no mechanism has been established to promote HLIs' accountability for the resources allocated to them; and (ii) there is no specific policy to promote science courses. The lack of science subjects in HLIs and the lack of coordination among those that are offered have simultaneously led to the duplication of courses, and a vertiginous drop in enrollment. Given the importance of the subject for national development and the issues science teaching currently faces (see earlier chapters), more affirmative action will be required. The goal is to implement the right incentives, both demand-side (reduced fees, more loans, and so on) and supply-side (legal enforcement, higher subsidies, and so on) to ensure that HLIs offer, and students enroll on science courses. The implementation of the Science, Technology and Higher Education Project (STHEP) should help in this regard, with targeted interventions in the high-priority science and technology disciplines.

• Access and Equity Issues

Under current and forthcoming enrollment patterns, MoEVT is paying special attention to the adequate management of the increase in access to higher education, ensuring equity issues are properly taken into account. Various mechanisms have been implemented or are under consideration, including streamlined admissions procedures, the extended national qualifications framework, cost-sharing policies and student loans, each examined in further detail in this section.

Admission into higher education institutions is coordinated by TCU, although the institutions themselves give candidates their final approval. There are three main university entrance options:180 (i) direct application for A-Level graduates, based on ACSEE scores, with variable admissions requirements according to the level of competition among candidates for a given programme; (ii) mature entrance for those aged 25 years and above with minimum professional experience, consisting of internal entry exams; and (iii) equivalent qualification, for those having a recognized award and who want to pursue a higher degree still.

However, following the growing number of HLIs and the subsequent expansion of student enrollment in recent years, the admission process has become more complex, creating a number of problems:

- (i) Students spend excessive time and money in multiple applications, to improve their chances of admission (some achieving multiple admissions in different institutions);
- (ii) The administration of the volume of applications and difficulties in the management of multiple admissions lead to delays in the start of the academic year;
- (iii) The disbursement of student loans by the Higher Education Student Loans Board (HESLB) is complicated by double payments, due to multiple admissions;
- (iv) Qualifying students fail to be admitted into university due to inconsistencies in their applications;
- (v) Universities run below capacity as a result of multiple admissions (reserving seats for students who eventually decide to accept another offer), denying opportunities to qualified applicants; and
- (vi) The admission process is prone to abuse and cheating on behalf of applicants.

To streamline the admission process and address some of the afore mentioned issues, TCU, NACTE and various HLIs have established a centralized admissions' system. The system is to be used by all public HLIs as of academic year 2010/11, but is also open to interested private institutions. The system will be accessible by all eligible applicants over internet or through the mobile phone text messaging system, to facilitate the follow-up of their applications.

In the same spirit of increasing access to higher education, TCU is proposing to modify the national qualifications framework. 181 Students undergoing vocational training would be eligible for university admission; and qualifications would be reclassified to open up a new access path to university, via O-Level and vocational training. This would ultimately improve equity as currently university access is limited to A-Level graduates, who are from the wealthiest families. 182

Monitoring the construction of new infrastructure will be important in the light of forthcoming student intake, despite the current slack in capacity. Many HLIs are still not running at full capacity. In the subsample of HLIs used in this report, the total intake capacity is of 50,508 seats, of which only 37,142 were effectively occupied by students, representing an average capacity usage of 74 percent. In some institutions the capacity usage is inefficiently low: the International Medical and Technology University runs at 18 percent of its capacity, Makumira University College runs at 20 percent and Mwenge University College runs at 30 percent. On the other hand, some facilities are crowded: MUCE has 27 percent more students than seats and Stefano Mushi Memorial University has 10 percent more.

Nevertheless, if the current enrollment trend continues, the need for greater higher education capacity will require imminent attention, and need to be approached in a systematic fashion, considering projected enrollment and subject specializations.

Cost-sharing is a means to improve higher education access and equity. The current policy regarding the financing of higher education is based on the government giving students grants and loans that cover university fees and some basic living expenses, and families, parents and guardians providing the difference. Although the policy was initiated in 1982, costs have gradually been transferred to families; the first loans were offered in 1994 to help with the cost of meals and accommodation, responding to parents' growing difficulty to cover the higher costs, and the government's inability to offer grants to an ever increasing number of students.

The HESLB has been operational since 2005. It is an autonomous parastatal agency, 183 whose main role is to provide loans to eligible students within eligible HLIs/programmes. Eligible HLIs are those accredited by TCU or NACTE, which offer degree and advanced diploma courses (in the case of higher technical institutions). Loans are then provided to all students whether in public or private institutions, universities or non-university institutions, who are enrolled in years 1, 2, 3 and 4. Master's and Ph.D. programmes are still not covered due to lack of adequate resources.

For students fulfilling the basic administrative criteria, access to HESLB loans is based primarily on merit (those who got Division I or II in ACSEE), with greater leniency for students enrolled on priority subjects (Teacher training and Science, in 2010). Secondly, students are means-tested to assess their relative need for the loan, and the proportion of the full loan amount they will receive. The latter mechanism is currently used in the absence of quotas, to set a ceiling to the number of potential loan beneficiaries. 184

The HESLB is today the main provider of loans, offering 97.4 percent of all student loans (the Tanzania Education Authority, the private sector and some NGOs also support students), to 81 percent of all higher education students. 185 Although this figure appears high from an equity conscious perspective (it has been established that most higher education students are from the wealthier families, least in need of support), it is also to be considered that only 17 percent of beneficiaries receive 90 percent or more of the full amount; although most students receive between 70 and 80 percent (See Table 8.1).

Table 8.1: Distribution of Student Loans, by Amount Granted, 2009/10 Percent					
Full Loan- 90 percent	80-70 percent	60-50 percent	40-30 percent	20-10 percent	Total
16.6	62.9	18.1	2.3	0.1	100.0

Source: TCU, based on a subsample of 17,676 loan beneficiaries in seven HLIs (DUCE, IMTU, IUCO, MUCE, MUM, MWUCE and UDSM).

The effectiveness and sustainability of the student loan system relies heavily on the HESLB management's capacity to recover amounts lent. One of the board's mandates is to recover loans issued since 1994, that have never been reimbursed due to the lack of enforcement of the terms, and the resulting perception by beneficiaries that the loans offered were more of grants. The HESLB is now working closely with firms and public services to identify and name former loan beneficiaries, who are given 10 years to pay back, or face prosecution. T Sh 3.2 billion (6.3 percent) are estimated to have been recovered, of the T Sh 51 billion lent. The sustainability of the student loan system will heavily depend on the effectiveness of the cost-recovery mechanism.

Staff Management

Characteristics of Teaching Staff

The university teaching force is predominantly male, female teachers accounting for just a fifth of HLI teachers in 2009/2010. The proportion of female lecturers is even lower in some institutions such as MUM (barely six percent), WBUCHS (12.5 percent) and MMU (16 percent). Subjects taught and the institutions' specialization have a degree of influence (for instance, female lecturers are more attracted to education colleges), but the fact that many girls do not even reach A-Level is the major constraint, impeding university admission.

The age structure of the teaching staff is reasonably well balanced: half of teachers are aged 40 years and under, and 30 percent are aged over 50 years (See Table 8.2). The systematic replacement of the older generation is underway with the recruitment of younger staff, which is certainly helping to lower the average age of the teaching force. In the meantime, to face the qualified teaching staff shortage, many retired teachers continue to work on a contract basis.

Table 8.2: Age Distribution of HLI Teaching Staff, 2009/10 Percent					
Age Distribution (Years)	All Teaching Staff	Staff Recruited since 2004			
≤ 30	13,2	20,8			
]30-40]	35,6	49,0			
]40-50]	19,9	13,8			
]50-60]	22,9	10,0			
≥61	8,5	6,6			
Total	100%	100%			
Mean Age (Years)	43	39			

Source: TCU, based on a subsample of 14 HLIs.

Administrative Staff

The recruitment of administrative staff is carried out on an ad hoc basis. Vacant jobs are advertised in the media; the management selects the three most eligible candidates and invites them for an interview; the name of the successful candidate is referred to the university council or university college governing board for approval.

The high level of administrative staff in higher learning institutions is an issue. The ratio of administrative staff to teaching staff in the subsample of HLIs used here was found to be 1 to 1 on average, in some cases reaching values as high as 2.4 to 1 (See Table 8.3). Although the type and variety of services provided (including catering, boarding facilities, medical services, and so on) certainly affects the number of administrative staff required, there is nevertheless scope for efficiency gains. A more balanced distribution of staff among teaching and nonteaching functions would favor the more efficient use of administrative staff, while allowing for savings.

Table 8.3: Teaching and Administrative Staff Numbers, and Share of Female, by HLI Type and Name, 2009/10 Number and Percent						
				Ratio of	Share of Female (%)	
	Teaching Staff	Admin. Staff	Total Staff *	Admin. to Teaching Staff	Teaching Staff	Admin. Staff
Public			•	•	•	
DUCE	147	166	307	1.13	32.7	45.2
MUCE	162	202	350	1.25	14.8	39.6
OUT	199	219	413	1.10	27.6	48.4
UDSM	1,031	1,149	2,015	1.11	18.9	36.6
Sample Subtotal	1,539	1,736	3,085	1.13	20.9	39.3
Private						
IMTU	68	22	85	0.32	22.1	45.5
IUCO	90	82	167	0.91	18.9	45.1
KCMC	93	48	132	0.52	30.1	60.4
MMU	38	37	60	0.97	15.8	27.0
MUM	18	35	45	1.94	5.6	20.0
MWUCE	33	33	66	1.00	27.3	27.3
SJUT	96	57	148	0.59	22.9	33.3
SMMUCO	47	20	66	0.43	23.4	50.0
UoA	35	84	112	2.40	20.0	35.7
WBUCHS	72	29	101	0.40	12.5	48.3
Sample Subtotal	590	447	982	0.76	21.2	39.1
Grand Total	2,129	2,183	4,067	1.03	21.0	39.2

Source: TCU.

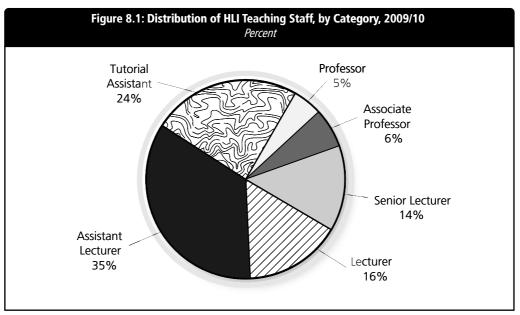
Note: The total number of staff by institution may be lower than the sum of teaching and administrative staff, because six percent of staff in this subsample of HLIs (247 people) perform both teaching and administrative duties.

Qualification and Upgrading of Teachers

University teaching staff are usually recruited among the institution's best graduates. Finalists apply to the management, and the names of the best applicants are referred to the university council for approval and employment as tutorial assistants. Other teaching vacancies are advertised in the media, and internal and external candidates compete for the position. Given this procedure, the general qualification level of lecturers is good. Academic staff belong to one of six categories, from tutorial assistant to professor.¹⁸⁶

For teaching to be of quality, one needs: (i) enough teaching staff to ensure a good and adequate level of student support; (ii) teaching staff with internationally recognized qualifications for adequate scientific and pedagogical activities; and (iii) staff renewal (UNESCO/BREDA, 2009). In Tanzania in 2009/10, 25 percent of the teaching staff were highly ranked (professor, associate professor or senior lecturer). The share of qualified professionals ranges from six percent in colleges such as DUCE, IUCO, SMUCCO and MWUCE where shorter curricula are offered, to 36 percent in UDSM and 50 percent in WBUCHS. This comparatively good: in other countries, the average share of highly ranked staff is 17 percent (UNESCO/BREDA, 2009).

Thirty percent of the qualified teaching staff (of the subsample of HLIs used here) holds a Ph.D., and a further 33 percent a master's degree. Almost all lecturers have the required level of qualifications (or above). Only two percent are underqualified for their position, and 36 percent have the right qualification to teach at their level (one level above that being taught, Ph.D.s excluded).



Note: Based on a subsample of 1,930 teaching staff in HLIs.

Among the teaching staff recruited since 2004, 36 percent are tutorial assistants, 43 percent are assistant lecturers, just 2.3 percent are professors, and two percent are associate professors. Despite this distribution where less than 17 percent are lecturers and senior lecturers, 63 percent of the new recruits do actually have a postgraduate diploma, among whom 11 percent are Ph.D. holders. Universities' determination to attract their best graduates may have encouraged them to open lower ranking positions to retain graduates until positions in line with their qualifications become available. Also, replacing outgoing teachers with tutorial assistants is a low-cost measure that nevertheless enables universities to maintain their student-teacher ratios.

University teaching staff currently upgrade on an individual basis, although universities may encourage their academic staff members to enroll for further studies, and offer some financial support. Expatriate staff are occasionally hired on a temporary basis to teach and supervise postgraduate students while institutions train their staff. The training of greater numbers of academic and technical staff to meet the increasing number of students in higher learning institutions is planned.

Working Conditions

Student-teacher ratios in higher education institutions, used here as a measure of working conditions for academic staff, average 15 to 1 (excluding the Open University of Tanzania due to its distance learning approach, making the STR a pointless indicator at worst, and a noncomparable one at best). STRs vary greatly across HLIs from a low 7.5 to 1 in WBUCHS to a crowded 43 to 1 in MUM. Although STRs have increased over the years, they are still low compared with other low-income countries, where the average was 21 to 1 in 2006, and close indeed to OECD countries' STRs, that average 15.6 to 1 (UNESCO/BREDA, 2009). Tanzania is therefore close to international standards, and apparently offers good working conditions. 187

The proportion of full-time teachers is also a measure of working conditions, reflecting the proper status. Full-time teaching staff are usually a factor of total enrollment, whereas the number of part-time and visiting teachers depends on temporary teaching staff shortfalls. In 87 percent of cases teachers are employed on a full-time basis (See Table 8.5 below). Some HLIs do however rely heavily on part-time staff, who represent between 50 and 80 percent of the teaching force (KCMC, WBUCHS, IMTU and MUCE), rather than using contract or expatriate teachers, upon whom there is generally little reliance.

Table 8.4: Student-Teacher and Student-Administrative Staff Ratios, by HLI Type and Name, 2009/10 Pupil-Staff Ratios Student-Student-% of Teaching **Teacher Admin** Staff Working **Ratio** Ratio **Full-time Public** DUCE 24.0 21.3 98.6 MUCE 11.7 9.4 49.4 OUT* 173.5 157.6 97.5 **UDSM** 12.5 11.2 99.7 Sample Subtotal 13.7 12.1 93.6 Private **IMTU** 10.3 31.9 47.1 IUCO 32.0 35.2 100.0 KCMC 20.4 9.4 18.3 MMU 16.7 17.2 94.7 MUM 100.0 43.1 22.2 MWUCE 18.1 18.1 81.8 SJUT 93.8 19.5 32.8 SMMUCO 10.5 24.7 91.5 UoA 24.7 10.3 94.3 **WBUCHS** 7.5 18.6 31.9 Sample Subtotal 17.3 22.9 69.7 **Grand Total** 14.8 14.5 87.3

Note: * Although values are included in the table for the Open University of Tanzania for reference, they are not included in the computation of the averages, because of the distance learning approach, that makes such ratios redundant.

In addition to the above, higher education teaching salaries are very attractive, 188 and other benefits include a housing allowance, the opportunity for professional and academic development and better opportunities of career progression.

However, poor working conditions and learning environments have been observed in some cases, which could nevertheless impede HLIs from attracting good academic staff. Indeed, much of the infrastructure is dilapidated and aging, inadequate for the increasing number of students and lacking in technology, equipment and teaching materials.

Regardless of these drawbacks, academic staff keep their positions. Various measures are being implemented to make the profession more attractive still, and hence facilitate recruitment, such as the establishment of a staff development fund to support young staff in higher learning institutions, the improvement of the learning environment and the provision of greater funding for research and development. The rehabilitation of the aging infrastructure and the construction of new facilities is also planned.

To briefly conclude this section, it could be argued that due to its still limited size following the slow development of secondary education, the Tanzanian higher education system is in a favorable position to adequately manage the development and diversification of supply. The country is theoretically adequately equipped to host the expected growth of students intake. However, to ensure the smooth and coherent development of the sector, attention must be paid to course requirements, and to the likely timescale in which the subsector is going to expand. The existing state institutions and parastatal agencies should be able to orient this policy both from its supply and its demand-side.

Technical and Vocational Education and Training (TVET)

The technical and vocational education and training sector is under growing pressure to support new socioeconomic developments and ensure that a growing number of basic and secondary school leavers are provided with adequate skills to enable them to develop their full potential in the workplace.

Rapid structural changes in the labor market have pushed for a rethink of TVET organization. In Tanzania, as in many countries in Africa, TVET is increasingly being reshaped to make it more attractive, efficient and effective, offering an alternative to secondary and university education, and combating youth unemployment and poverty (Ndunguru, 2006). This context, marked by expanding, yet still small, private sector and urban informal sectors, poses the challenge of training students that both address the private sector's demand for skills, and are able to start a business. TVET must also rapidly adjust to new technological needs, as the market progressively moves away from traditional economic activities to embrace new areas such as IT application, mining, financial services, retail/wholesale, hospitality, tourism and agro-processing industries (Ndunguru, 2006).

The government has undertaken a series of actions within the framework of the 1996 Technical Education and Training policy and the 1994 VET Act, that regulate the whole TVET sector. These policies have since been complemented by a new institutional set-up: Vocational Education and Training (VET) and Technical Education (TE) were incorporated under MoEVT in 2005 and 2008 respectively, seeking to improve the management of the sector through a single supervisory entity. 189

MoVET's TVET department is responsible for policy and guideline formulation, regulation, the monitoring and evaluation of subsector performance and the coordination of education programmes, as well as the capacity building of TVET managers. MoEVT is also responsible for quality assurance through two regulatory bodies: the National Council for Technical Education (NACTE), and the Vocational Education and Training Authority (VETA).

These developments have certainly allowed for more coordination within the sector and a clear delineation of roles and responsibilities across agencies; however, greater integration still is necessary, of both the vertical and the horizontal variety, to reach a coherent institutional framework for the development of the TVET sector.

This section addresses issues related to TVET management, first reviewing Technical Education, then Vocational Education and Training, focusing on the registration of training centers, quality assurance mechanisms, and human and financial resource management.

Technical Education¹⁹⁰

Technical education is currently offered by a variety of providers, including various ministries (for whom training is not the core function), private institutions, NGOs and faith-based organizations. In 2009, 213 (out of 221) tertiary education institutions were registered, three belonging to MoEVT. The various technical fields are clustered into five subject areas (Agriculture, Natural Resources and Environment; Business and Management; Engineering and Other Sciences; Health and Allied Sciences; and Planning and Welfare), each of which has a supervisory board in NACTE. Although the lack of a national TE strategy has resulted in the sometimes incoherent development of trainings by individual institutions, a technical and vocational training development programme is under elaboration.

NACTE

Since 1997, NACTE is the principal technical education regulatory body. NACTE's main tasks are to develop and implement policies, regulations and procedures to set and maintain quality standards in technical education, and advise the government on the strategic development of the subsector. Its scope covers all the technical tertiary education institutions that deliver courses at technician, semi-professional and professional levels leading to the award of a certificate, diploma, degree or other related award, other than universities and their affiliated colleges.

NACTE's creation spurred various important improvements in the management of the sector, through greater stakeholder coordination, the harmonization of curricula standards, the national recognition of awards, the set-up of standardized registration and accreditation procedures and better compliance of training with labor market needs.

Quality Assurance and Market Relevancy Instruments

The following quality assurance actions have been undertaken to date:

- (i) Registration procedures have been defined for TE institutions, and accreditation standards established:
- (ii) Guidelines and procedures manuals have been printed on policy, academic standards, management, among others;
- (ii) A national technical education qualifications' framework has been approved; and
- (iv) An outcome based training approach has been implemented.

Table 8.5: Registration and Accreditation Status of HLIs, 2009 Number and Percent						
Stage of Registration Accreditation						
Preparatory/Candidacy	8	33				
Provisional	35	36				
Full	178	50				
Total 213 86						
%	96%	39%				

Source: : NACTE.

Note: Includes Zanzibar, Out of a total number of 221 HLIs.

The registration of training institutions aims to ensure that they satisfy legal and basic academic requirements, such as having adequate infrastructure, equipment, staff and physical and financial resources, to conduct training programmes in a sustainable manner. Registration must be renewed every five years. There are three categories of registration: preparatory, provisional, and full, that are given to institutions on the basis of the time they are expected to function given their available resources (See Table 8.5). Institutions with preparatory registration are not allowed to enroll students.

At the end of 2009, 96 percent of the 221 physically verified institutions were operational, with full or provisional registration. In 2002, only 41 institutions were registered, which shows the important development of the sector over the period. Of those 221, 86 (39 percent) had been granted full or provisional accreditation.

The process of accreditation evaluates institutions' capacities in conducting labor market surveys, developing curricula and setting up quality assurance and control mechanisms (JESR, 2009). Ten standards have been developed, whose criteria are demanding, explaining the slower growth in the number of HLIs achieving accreditation.

A series of guidelines and procedure manuals have been issued and made available to the public, covering topics such as: the registration and accreditation of technical institutions, quality management plan development, quality control and quality assurance policies, academic quality standards or curriculum development. The quidelines should contribute to improving the quality of service being delivered in the sector.

Emphasis on preparing the trainees for employability in the formal and informal sector and providing them with lifelong training opportunities has become core to curriculum, assessment, and certification design (Ndunguru, 2006).

A national technical education qualifications' framework was adopted in 2005. The framework has standardized technical qualifications, defining ten clear levels¹⁹¹ and progression paths, and has harmonized accreditation procedures, to give the certificates credibility with both employers and training institutions. The National Technical Awards (NTA) are competence and outcome-based technical qualifications that are designed to certify that the holder is able to apply flexibly and competently the knowledge, skills and attitudes required by the workplace of the relevant occupational sector. Links need to be strengthened between the vocational and technical education subsectors, and upward mobility to higher qualifications ensured to develop a system able to adequately respond to people's training needs throughout their working life.

The outcome-based training approach has been implemented to ensure that trainees master both theoretical and practical skills upon completion of their course (Ndunguru, 2006). Trainee assessment involves a combination of tests: continuous assessment after each course, practical assessment, end of module assessment, and industrial practical training. 192

Market Orientation of TE Courses

A full range of technical education qualifications are available, including: the Basic Technician Certificate, the Technician Certificate, Ordinary and Higher Diplomas, Bachelor's Degrees and postgraduate degrees. TE institutions are still focused on long courses, delivered inhouse. This issue is progressively being addressed through the introduction of part-time and evening classes for those who cannot commit to full-day training due to work obligations. The biggest challenge in TE however is to involve industry more in the design, provision and financing of training courses that address specific productivity enhancement requirements. Those are most lacking in the spectrum of courses and qualifications available.

In order to support the technical education subsector in its development, improve its efficiency and make it more responsive to market needs, training providers must be supplied with consistent labor market information, specifically outlining the sectoral needs in terms of skills and competencies. NACTE's standards for curriculum development require labor market surveys to be conducted in relation to proposed programmes. The results of these studies and the competencies identified would then be used to develop the curriculum. To improve standards further, draft curricula could be shared during stakeholder workshops to which key private-sector representatives are invited.

As noted in the ESPR, 2009 however, institutions conducting labor market surveys have limited capacities and resources, creating a mismatch between the needed skills' development and current institutional service delivery. The report further highlights the need for existing curricula to be regularly reviewed in order to be in line with technological progress and new skill needs. It is important that such a mechanism be implemented to ensure that technical education remains relevant.

Technical Education Funding

TE relies on a variety of funding sources for its development and operations: direct government subsidies through the various ministries involved, household contributions through student fees, and institutional fund-raising activities. Financial resources are generally noted to be a major constraint faced by TE institutions in meeting their set goals, which could ultimately harm the quality of the training offered. They particularly lack modern training equipment and sufficient and relevant learning materials (ESPR, 2009).

The social and economic demand for TE is set to increase: the enrollment growth at basic and secondary levels under the PEDP and the SEDP mean that the number of potential trainees will also have grown and is to grow further still. In this context, finding a balanced funding mechanism is crucial to ensure the smooth and equitable development of the sector. Although cost-sharing mechanisms are necessary to ensure the sustainable financing of the system, ensuring the poorest potential trainees also have access is important and should be monitored. Granting TE trainees access to higher education loans is an important measure that needs to be strengthened. Currently, students in technical HLIs account for 13 percent of all higher education loan beneficiaries.

Management of Teaching Staff

A harmonized service scheme for technical teachers contributes to the quality of technical education delivery by motivating academic staff, and facilitating the recruitment and retention of quality staff (NACTE, 2007). The scheme of service stipulates the required staff qualifications, work experience, career progression and duties to be performed, for each teaching rank, recognizing the NTA qualification and academic programme system.

To facilitate the horizontal mobility of teaching staff and make institutions more competitive in attracting human capital, entry levels have been diversified to extend employment opportunities to higher academic ranks. Vertical mobility is also favored, based on qualifications and experience. Technical teaching staff fall under two main categories, based on the level of technical educational training offered, lecturers and instructors. Annex Tables 8.6 and 8.7 provide a visual representation of the career progression opportunities of each.

All technical education teachers must be registered according to strict procedures that ensure that the teachers who join technical institutions are of high quality. The three categories for the registration of technical teachers are: (i) full registration; (ii) registration subject to confirmation; and (iii) provisional registration. The stage of registration is based upon the satisfaction of a series of requirements which include: general qualifications, teacher training qualifications, the ability to teach, good character, and teaching and

professional experience. Registration must be renewed every three years. In June 2009, 1,574 TE teachers out of 2,970 had full or provisional registration (53 percent). By subject area, the percentage of registered TE teachers varies from 32 percent in health and allied sciences to 83 percent in planning and welfare.

Table 8.6: Distribution of TE Registered Teaching Staff, by Qualification, 2008/09 Percent						
	Male	Female	Total			
Ph.D.	2.8	1.4	2.5			
Master's Degree	36.5	35.0	36.2			
Bachelor's Degree	29.3	21.8	27.5			
Advanced Diploma	13.6	14.3	13.7			
Ordinary Diploma	16.0	26.3	18.5			
Full Technician Certificate	1.2	0.0	0.9			
Ordinary Certificate	0.5	1.1	0.7			
Total	Total 100.0 100.0 100.0					
Number	1,128	357	1,485			

Source: : NACTE.

Note: Based on a subsample of 1,485 registered teachers, that account for 50 percent of the technical teaching staff in 2008/09. Includes Zanzibar.

TE teacher characteristics indicate that the staff are predominantly male, and in general, qualified. The limited available information on registered teachers shows that men account for 76 percent of the technical teaching force. In academic year 2008/09, 39 percent held master's degrees or Ph.D.s, and a further 27.5 percent held bachelor's degrees (See Table 8.6). However, little is known about teachers' industrial experience. Some concerns have been raised that academic qualifications have been valued more than work experience and skills, effectively limiting the number of fully competent teachers. However, under the current TE teachers' service scheme, this problem should wane in the future.

The age structure of the registered teaching workforce is reasonably balanced, with those aged 51 years and above forming a third of the registered teaching force, and teachers between 31 and 50 years representing 56 percent of the total (See Table 8.7).

Table 8.7: Age Distribution of Technical Teaching Staff, 2008/09 Percent						
Male Female Total						
21-30 Years	9.9	11.8	10.4			
31-40 Years	28.4	28.6	28.4			
41-50 Years	28.4	24.4	27.4			
51-60 Years	29.0	31.1	29.5			
61+ Years 4.3 4.2 4.3						

Note: Based on a subsample of 1,485 registered teachers, that account for 50 percent of the technical teaching staff in 2008/09. Includes Zanzibar.

Qualification upgrading is offered through government institutions' master's and Ph.D. programmes, and short courses. In academic year 2008/09, 42 teaching staff were enrolled on postgraduate programmes, and 32 were following short trainings. Technical teacher development still requires better planning and coordination; currently upgrading is primarily based on staff's own efforts to find further training opportunities (ESPR, 2009).

Student-Staff Ratios

Student-teacher ratios have remained stable in the technical education subsector: in academic year 2008/09, data from a subsample of 86 institutions (for which information on both enrollment and teaching staff was available) provided a STR of 13.2 to 1, varying between 1 to 1 and 60 to 1. The ratio, estimated at 12.8 to 1 in 2005, shows great stability over years, implying that the recruitment of teachers has kept pace with student enrollment. It is difficult to precisely assess the STR level, as it often varies according to the subject taught, some technical curricula being more teacher intensive than general curricula.

The student to administrative staff ratio was estimated at 12.8 to 1 on average (ranging between 0.5 to 1 and 143 to 1) which implies that TE employs as many administrative staff as teachers. Here again, the situation should be further examined at the institutional level, as institutions that have boarding facilities, health centers or catering services tend to hire relatively more administrative staff.

Vocational Education and Training

Vocational Education and Training mainly includes long courses staged by vocational training centers (VTCs) and folk development colleges (FDCs). In 2008, VTCs accounted for 94 percent of all training centers (889), and FDCs for the remaining six percent (54 centers); 730 training centers were nongovernmental, or 77 percent. The two largest categories respectively accounted for 43 and 31 percent of VTCs: private and faith-based (FBO - See Table 8.9 below). VETA itself was only directly responsible for 21 centers (two percent of VTCs).

As such, the subsector is the dual responsibility of both MoEVT, through the Vocational Education and Training Authority (VETA), and the Ministry of Community Development, Gender and Children (MCDGC), through the Folk Development College Secretariat. The VETA Corporate Plan (2007-11) and the Folk Education Development Programme (2007-11) are currently their main respective guiding frameworks.

The subsector is still governed by the Education Act of 1978 (delineating FDCs' roles and responsibilities) and the VET act of 1994 (that created VETA). However the two training arrangements are institutionally distinct: FDCs fell under the mandate of the MCDGC in 1990, transferred from the Ministry of Education, and in 2005, VETA was integrated to

MoEVT from the Ministry of Labour, Youth and Development to allow for more integration within the education sector. Despite the strong links that exist between VETA and FDCs, the current institutional set-up contributes to the fragmentation of VET service delivery: 193

- (i) VETA is a parastatal agency governed by an autonomous board. Its main responsibilities lie in coordinating, regulating, and financing the provision of VET; it is also responsible for: curricula development, inspections of institutions, the accreditation of training centers, support to centers, informal sector training and labor market monitoring. The management of training centers represents a minor share of its responsibilities. VETA works in a decentralized manner, through nine zonal secretariats and 22 regional boards, that set regional training priorities, supervise the preparation of budgets for those priorities and submit them to the VETA board for endorsement, oversee the provision of training in their region, and inspect the VTCs in their area: and
- (ii) The folk development college secretariat, under the community development department of the MCDGC, is responsible for the supervision and inspection of FDCs, curriculum development, quality assurance and the disbursement of government funds to the colleges. Folk education is provided according to seven geographical zones, each of which has a board composed of members of their respective local councils that report to the Permanent Secretary of MCDGC. FDC principals also meet regularly during the year to inform the ministry of relevant administrative issues.

Management of Access and Transition

The two different types of VET courses (VTC/VETA and FDC long courses) respectively cater for:

- (i) VTC/VETA courses: primary school leavers and O-Level secondary school dropouts or leavers. For the VETA-managed centers the minimum entry requirement is to have completed Standard VII or Form 4, in addition to an aptitude test, to select the best candidates according to the number of seats available. Many Standard VII school leavers apply as they are left with few education alternatives. They are obviously at a disadvantage compared with their Form 4 counterparts, who sit the same entry test, especially in urban areas (where O-Level leavers are more numerous). The selection is competitive, as places are limited and applicants are numerous: in 2008, 5,000 applied, for 1,000 seats. The admission procedures in non VETA centers are similar, with an entry aptitude test, although the selection criteria might differ; and
- (ii) FDC courses: active workers, regardless of their level of education. Entry to FDCs is open to youth and adults, including the elderly and people with special needs (with disabilities, young mothers, child laborers, and so on) regardless of their level of education. The preferred mode of selection is that whereby villages/communities select and present their applicants. Also, trainers from FDCs visit outreach centers to provide training on the spot.

The competency-based qualifications framework should facilitate the transition between levels, and technically, between subsectors, as each level provides a competencies' certificate.¹⁹⁴ In 2008, only 13 percent of the 889 VTCs offered the CBET.¹⁹⁵ The already outdated target to have all VTCs implement the CBET approach by 2011 entails the need to sustain and accelerate efforts.

Despite these bridges, VET generally suffers from a lack of practical mechanisms for vertical academic promotion. Few opportunities are found in practice for VET graduates to move to TE or higher education programs, even if the NTA award system theoretically provides them. This situation ultimately limits the qualifications' upgrading of VET learners, making the subsector less attractive for potential trainees who will favor more academic curricula as the secondary system expands. The practical difficulties faced by VET trainees in pursuing formal education also contribute to the subsector's image as offering an education option of last resort. A committee comprising representatives from VETA, NACTE and other key stakeholders was formed to consider ways of promoting the vertical progression of VET graduates. The findings of the committee were endorsed by both VETA and NACTE councils, and work on the development of bridging programmes for some specialties is progressing well.

So, although the entry criteria are not rigid and the opportunity to follow a VET course is technically open to all, the entry test might indeed penalize primary school leavers, thus limiting their ability to pursue their education. A quota system could be put into place to ensure Standard VII leavers are granted access despite their lower performances than their Form 4 counterparts. Efforts are to be scaled up to reach the set target of having all VTCs implementing the competency-based approach by 2011, and to improve the scope for transitions between VET, HE, and general education careers.

Registration and Accreditation

VETA has introduced rigorous registration and accreditation guidelines, to ensure that the learning environment and outcomes are of the expected quality. In similar fashion to the NACTE processes for technical education, registration ensures that VET providers are legally constituted and have the necessary physical, pedagogical and human resources; and accreditation is a quality assurance process. However, whereas registration is compulsory, accreditation is still voluntary.

In 2008, 78 percent of VTC centers were registered (50 percent provisionally, and 28 percent fully); the remaining 22 percent were awaiting registration. 196 Table 8.8 below shows the registration status of VET centers by region. Year 2008 marked a move toward increasing the quality of training offered through the cancelation of underperforming or unoperational centers' registration.

Table 8.8: Number of VTCs by Registration Status, 2008 <i>Number and Percent</i>					
Region	Pending Registration	Provisional Registration	Full Registration	Total	
Arusha	12	34	22	68	
Coast / Pwani	3	19	1	23	
Dar es Salaam	10	154	50	214	
Dodoma	5	15	6	26	
Iringa	19	27	24	70	
Kagera	20	11	14	45	
Kigoma	3	6	5	14	
Kilimanjaro	6	31	31	68	
Lindi	10	7	0	17	
Manyara	2	5	5	12	
Mara	8	9	6	23	
Mbeya	4	26	15	45	
Morogoro	2	19	9	30	
Mtwara	17	7	1	25	
Mwanza	25	27	16	68	
Rukwa	3	3	5	11	
Ruvuma	19	4	12	35	
Shinyanga	4	8	5	17	
Singida	0	11	4	15	
Tabora	5	3	6	14	
Tanga	23	17	9	49	
Total	200	443	246	889	
%	22%	50%	28%	100%	

Source: VETA, 2009.

Regional Distribution of VET Centers

The location of VTCs is however still skewed toward eastern regions and urban zones. The distribution of VTCs across the country is uneven: Dar es Salaam is home to almost a quarter of all centers (214); Iringa (70), Arusha, Kilimanjaro and Mwanza (68 each) regions are also particularly well endowed compared with Rukwa, Manyara, Tabora, Kigoma, and Singida regions which each have less than 15 centers (See Table 8.9 below).

Table 8.9: Distribution of VET Training Centers, by Type, Ownership and Region, 2008 Number and Percent VTCs **FDCs Evolution** Total (2007-08)**VETA FBO** Govt. **Private** NGO Subtotal MCDGC Arusha -1 Coast/Pwani -37 Dar es Salaam Dodoma Iringa Kagera -16 Kigoma Kilimanjaro -6 Lindi ი Manyara Mara -5 Mbeya -2 Morogoro -3 Mtwara Mwanza ი -3 Rukwa Ruvuma -5 Shinyanga Singida -5 Tabora -2 Tanga -49 Total % of VTCs 2% 31% 16% 43% 8% 100% n.a. n.a. % of Total 2% 29% 15% 41% 7% 6% 100%

Source: VETA, 2009.

The drop observed in Dar es Salaam and Kigoma regions could be associated to the closing down of poor/under-performing centers (see above).

FDCs are found in all regions, in general two to three per region. Although there is a strong will to ensure that all districts have a VTC, the lack of adequate financial resources is the main constraint to VTC expansion.

VTCs Capacity: VTC size (for long courses) averaged 77 students in 2008, a sharp reduction over 2007 when it averaged 102 students. Wide variations are observed according to VTCs ownership however, with VETA owned VTCs being 3.8 times larger than other centers. Strong regional variations are also observed with centers catering for as few as 32 students in Pwani to 157 in Kilimanjaro. FDCs capacity for long courses was of 85 students on average in 2008, almost the same as in 2007.

Market Orientation of VET Courses

One of the key roles of VETA is to make the VET system more responsive to labor market demands, and adapt curricula accordingly. Indeed, training institutions are increasingly confronted with the challenge of transforming and adapting their services to market realities and needs. To achieve this, VETA has implemented an effective monitoring and evaluation mechanism, whereby zonal labor market analysts regularly collect data that is then compiled at the national level and used to orient strategies. This data is complemented by mini market surveys to track current and prospective industry needs. This demand-driven approach, relating training outputs to labor market needs, is certainly central in the development of relevant curricula, and should facilitate the transition of trainees to the workplace. 197 In addition, regular interaction between VET centers and industry and commerce is promoted through the detachment of tutors and students to industry to gain practical exposure, and the secondment of industrial practitioners to training centers to teach specific topics, further ensuring the relevancy of curricula.

The main focus of FDC training is to prepare trainees for self-employment. Their long course programmes are also demand-driven and curricula are developed after conducting community training needs' assessments.

Teaching Staffing Issues

The training of vocational training centre staff is still a major challenge. VTC staff are either permanent or contract-based. Contract-based staff are outsourced, and are mainly used for specialized courses. Their pay is not standardized, as it depends on the type of course taught. Staff is generally recruited at the subnational level, based on center needs, and then consolidated at the central level. Studies reveal that besides an acute shortage of quality teaching staff, trainers' competencies are focused on methodology, and their practical industrial competencies need reinforcing and updating. Private and NGO centers' teaching staff are generally recruited from the labor market; they therefore tend to have greater practical industrial skills, but fewer methodological skills. The most apparent problem is the availability of competent trainers for Levels 2 and 3. Tutor trainings are currently mainly conducted in the Morogoro Vocational Instruction College, and short trainings are staged abroad for some staff.

FDC staff may be permanent, temporary or borrowed from local councils, with their salaries respectively being paid by the government, FDCs' own funds or local councils. Government staff are recruited by MCDGC. Most of the teaching staff are trained in MoEVT institutions and MCDGC community development training institutes. However, despite the upgrading opportunities being offered to FDC tutors, qualified tutors are known to be in short supply.

Thus, the VET sector faces a major challenge in terms of human resources, in how to consolidate VTC and FDC training, in order to provide the teaching staff with both the pedagogical and occupational skills required.

Funding Issues

The main resources mobilized by the VET subsector are trainee fees, ¹⁹⁸ government grants, proceeds of fund-raising activities, and the development and skill levy, an employer contribution representing about two percent of company payrolls. Although the levy is an interesting and innovative fund-raising mechanism, its main constraint lies with the small size of the formal private economy, which ultimately generates insufficient resources to adequately cater for VET institutions operational needs.

FDC activities are financed through government allocations, user contributions, fund-raising activities and voluntary contributions. FDCs appear to be particularly suffering from the low level of funding, hampering their provision of quality teaching. Finding ways to adequately diversify the sources of income and improve its level will prove key in the near future. In addition to seeking out new sources of funds, for instance from the private sector, or communities, it is advisable to also implement short-term cost-efficiency measures.

Finally, to improve the quality of VET provision in both government and private owned VTCs, VETA has recently supplied some VTCs either with modern equipment and tools or additional subsidies to purchase them, but requirements remain high and many centers, especially those owned by the government (including FDCs), continue to face a shortage.

KEY FINDINGS

The Higher Education and TVET sectors are under pressure today to adequately respond to new socioeconomic developments and needs and absorb the forthcoming wave of primary and secondary education school leavers. The low productivity and inadequate skills of the workforce have been recognized as major constraints to achieving the country's economic and productive goals. The government has deployed a series of strategies to ensure the adequate and more concerted development of both higher education and the TVET subsectors, to supply the economy with the increasing number of skilled and knowledgeable professionals it needs to sustain its growth.

Tanzania's higher education and TVET subsectors are in a relatively favorable situation compared with other countries: the secondary education cycle is undergoing recent development, and sound institutional frameworks and strong regulatory and quality assurance bodies have been created, underlining the country's ability to provide solid foundations for the expansion of the higher and the technical and vocational education subsectors. These should allow for further solid developments, especially having established the principles of quality control (registration, accreditation, certification, curricula relevance, teacher recruitment, qualifications framework, and so on) and cost-sharing.

There is however a need to better understand the relevancy of higher education programmes, by ensuring the correct analytical tools are implemented (such as labor market tracer surveys). An underlying issue is to influence the courses of study chosen and the career paths of graduates to contribute to the balanced development of the economy. Especially under current and forthcoming financial constraints and needs, issues such as the desired level of enrollment in HLIs and the diversification of curricula need to be better understood. These questions could be looked at and discussed within the framework of a simulation model

Technical and vocational education and training policies are facing increasing pressure to support new socioeconomic developments and ensure that a growing number of basic and secondary school leavers are provided with adequate skills to enable them to develop their full potential in the workplace. Although regulatory and quality assurance bodies provide important guarantees for the controlled development of the TVET subsector, this raises a series of challenges:

- (i) The diversity of training demand linked to the heterogeneity of the target population (school leavers, technicians wanting to upgrade or change jobs, low skilled/educated people from urban and rural areas);
- (ii) The variety of TVET programs and providers (ministries, parastatal agencies, faithbased organizations, NGOs, private institutions);
- (iii) The institutional fragmentation of the TVET system, involving two ministries and three different parastatal agencies; and

(iv) The practical continuity between VET and TE curricula/programmes, although theoretical bridges do exist between both sectors, as defined in the national qualifications' framework.

Furthermore, a good training system is characterized by its degree of flexibility and responsiveness to changing demand, which requires adequate monitoring tools to track current and forthcoming economic needs. The TVET system seems to have the right tools (such as labor market surveys and tracer surveys) to adequately develop and update curricula according to changing market demand. However, a dynamic connection between TVET training institutions and industry is desirable to sustain and facilitate the smooth and coherent development of relevant workforce skills.

An underlying issue is to have teaching staff with the right qualifications, both theoretical and practical; to date, the training of tutors has not been given enough attention and support. Preservice and in-service training opportunities will need to be adequately set up to improve teaching quality.

Finally, finding ways to adequately diversify the sources of funding and increase the level of financing will prove key to allow the TVET subsector to address future market and economic demand.

Notes

- 177 All higher education data are from The Tanzania Commission for Universities (TCU) and are based on a subsample of 13 HLIs (listed in Table 8.3; the OUT is also considered when data is available) covering the 2009/10 academic year. Although this sample of institutions may not be fully representative of all HLIs it nevertheless provides interesting insight into the functioning of the system. Annex Table 8.1 provides the list of all HLIs.
- 178 Before the 2005 University Act, universities were established by decree.
- 179 Many African countries have perceived the need to promote and improve the quality of their higher education system and to implement adequate quality assurance systems following the diversification and growing supply of private HLIs at the national level and the internationalization of universities at subregional and global levels (UNESCO/BREDA, 2009).
- 180 Until 2008, students had to sit admissions exams for each HLI. This practice was discontinued because of the discriminatory nature of the procedure, related to the cost of transportation and accommodation.
- 181 The national qualifications framework is the instrument used for the development and classification of qualifications and courses of study according to a set of criteria that include learning achievements and the skills acquired.
- 182 The wealth parity index for A-Level completion is nil, indicating that for every 100 pupils from Q1 accessing university, none from Q5 do (See chapter 5).
- 183 It has its own board, and decisions are taken independently. The director is appointed by MoEVT, but the staff are nominated by the board. The board reports to the Permanent Secretary of MoEVT, and is composed of 14 directors representing various stakeholders.
- 184 Means-testing is carried out on the basis of a form filled out by the applicant, which opens the door to abuse. Although control mechanisms have been established (communities, village or district authorities must validate the information provided) they can easily be circumvented by bribing local authorities.
- 185 These figures exclude Open University of Tanzania students who are not entitled to loans or grants.
- 186 The category of tutorial assistant was reinstated in the 2000s because of the shortage of qualified teachers.
- 187 Recommended STRs are respectively of 20 to 1 for Arts and 10 to 1 for Science (JESR, 2009)
- 188 On the basis of scarce data, it appears that the salaries of academic staff in Tanzania are higher than those of their Ugandan and Rwandan counterparts (MINEDUC, 2009).
- 189 Folk Development College activities, a minor share of the sector, fall under the mandate of the MCDGC.
- 190 This section deals with technical education institutions regulated by NACTE. It relies heavily on NACTE, 2007 and Ndunguru, 2006.
- 191 Levels 1 to 3 are the VETA-granted National Vocational Technical Awards (NVTA); and Levels 4 to 10 are the NACTEgranted National Technical Awards (NTA). Annex Table 8.8 describes the skill and competency levels associated with each level.
- 192 This approach, that focuses more on what students learn, is becoming popular in many countries.
- 193 There is no formal coordination platform per se.
- 194 Competency-based education and training (CBET) assessment and certification is based on continuous assessment. It therefore has an inbuilt quality assurance mechanism for ensuring that graduates are fully competent in the module in which they are being certified. (Ndunguru, 2006).
- 195 FDCs do not offer academic certificates due to the underlying folk development philosophy which emphasizes the acquisition of knowledge and skills for self-employment, and the nature and variety of trainees and courses. Colleges do offer course completion certificates, and long course participants who wish to upgrade academically are encouraged to attempt the Trade Test Examination offered by VETA for certification. This is eased by the fact that FDCs are also VETA trade test examination centers.
- 196 VETA registration does not apply to FDCs because they are registered government institutions.
- 197 Currently there is demand for skilled labor in the fields of: hospitality (hotel management and tourism), construction, mining, printing industry, electronics and mechanics. The last tracer survey also indicates the good insertion of VET trainees into the labor market, although disparities are observed across courses (See Chapter 6).
- 198 As VETA-run centers are highly subsidized, fees are T Sh 120,000 for boarders and T Sh 60,000 for day-school students. In nongovernmental centers, fees start at T Sh 300,000, and vary above that amount according to the center and programme