HIGHLIGHTS OF COUNTRY REPORTS ON TECHNICAL EDUCATION

The Gambia

General education includes primary education (6 years), junior secondary education (4 years), and vocational education which takes place in a Vocational Training Institute.

Prior to 1964 vocational training at the Institute was restricted to carpentry, joinery and masonry. Now with the increased need for skilled craftsmen, it has expanded its facilities to enable it to offer courses in other areas such as mechanical engineering, craft practice, welding and motor mechanics. Students of the Institute take the Institute's Examination as well as the City & Guilds Part I Examination. Further expansion and upgrading into a Technical Institute will enable it to offer courses in agriculture, plumbing, electrical installation etc. It is also expected that in the near future a Rural Training Centre will be established.

So far, industrial training has not been able to meet the needs of industry for middle-level manpower.

Ghana

With the launching of the new Education Service in April 1974 there has been a shift in emphasis from the purely academic type of education to one giving high priority to technical education and vocational training at all levels of the educational system.

First cycle education is of nine years' duration and comprises six years primary plus three years junior secondary and is basic, free and compulsory for all.

Second cycle education selection is made into the following terminal courses: two years senior secondary lower, and three years technical/ vocational or commercial.

Pupils who successfully pass the second cycle of education and who have the relevant qualification can proceed to (a) two years senior secondary upper (present "A" level); (b) three year teacher training course, or (c) polytechnic course.

Pupils with GCE "A" level qualification who do not proceed to university are encouraged to train for middle-level professions in polytechnics, specialist, and teacher training colleges.

The Technical Education Division of the Ghana Education Service provides the machinery and infrastructure for a system of (a) technical education and vocational training aimed at producing adequate supply of middle-level and skilled manpower in all fields of industry; (b) training of technical teachers; and (c) institutional supplements or "off the job" training

of apprentices, the "in-plant" aspect of which is by law the responsibility of the Ministry of Labour acting through the National Vocational Training Institute.

The National Vocational Training Institute (NVTI) was established by an Act of Parliament in 1969 with the sole responsibility for the organization of apprenticeship in-plant training, preparation of training programmes, and provision of training standards for these programmes. Its activities are presently limited to craft apprentices only. It is governed by a Board of Directors on which are represented the Trade Union Congress, Employers Association and the Technical Education Division of the Ghana Education Service. There are also other councils and committees on which industry and commerce are represented: one of them is the National Apprenticeship Council.

The board has so far approved 50 apprentice Training Standards and established 55 apprenticeable trades.

The functions of the Technical Education Division are presently organized and conducted through the following:

(a) Fourteen technical institutes and trade centres responsible for full-time, block release, part-time, and evening-class courses for craft-level students.

(b) Three polytechnics for technician and middle level manpower training for industry and commerce.

(c) One School of Mines for the training of technicians in the mining industry.

(d) Two training institutions for the training of technical teachers for the polytechnics, technical institutes and secondary schools - both junior and senior.

All the above institutions are administered by management committees on which industry and commerce are fully represented. These are being enlarged into Boards of Governors to make them more effective.

Technician courses have built-in provisions to ensure that their output provides adequate industrial experience. These take the form of at least a year of industrial attachment between the second and third part of a three-part course.

The following technician courses, with specialization at the Part III level, are now available in the system - mechanical, electrical, and construction. Also available are courses in science laboratory and dispensing.

Relations with industry have improved over the years in the sponsorship of students, placement for industrial attachment, industrial visits, and project work for technician trainees.

Regarding examinations, the machinery for the change-over from City & Guilds of London Institute to local examinations is gradually taking shape and it is hoped that by 1980 all the processes will have been completed.

Advisory Committees have been formed for all course areas; industry and commerce are fully represented, with the hope that resulting schemes and programmes will reflect the needs of local industries.

Kenya

Education in Kenya consists of seven years of primary, four years of secondary, and two years of higher secondary school education.

Secondary education leads to a national examination, the East African Certificate of Education (EACE) examination. This is the level at which most training programmes for middle-level management manpower start. The two years after EACE lead to the East African Advanced Certificate of Education (EAACE) examination. This examination qualifies students for entry to universities and other institutes of higher learning.

There are about 8,000 primary schools with enrolment ranging from 50 to 900 children. In addition, there are 450 government-maintained secondary schools which are supplemented by a similar number run and financed on "harambee" (self-help) basis by local people. Among the maintained secondary schools are 30 secondary schools offering industrial education and 13 which offer technical education.

In secondary technical schools, the curriculum includes basic engineering and basic building trades courses. The bulk of these students are selected by employers through the Directorate of Industrial Training for craftsmen apprenticeship training programmes. Training is on sponsorship basis and normally lasts three years.

The polytechnics receive students with relevant credit passes in the EACE Examination (English and Mathematics are compulsory) for technician, Ordinary and Higher Diploma courses. Courses offered are mechanical, electrical, automotive, building and civil engineering. Commerce and accountancy courses are also available.

Students pursuing technical courses are wholly sponsored by their employers. Sandwich, day-release and evening classes are held to suit each candidate.

To supplement polytechnic training, parastatal organizations have their own training schools to suit their own special training requirements.

Harambee Institutes of Technology are run on a self-help basis, and depending on individual finances, offer various courses at both craft and technician levels.

Village Polytechnics and National Youth Services assist in imparting craft skills to some youths who cannot be absorbed into the secondary school system after their primary education.

Under the National Industrial Training Act of 1971, employers are required to pay a levy to a central fund to cover craft and technician training costs of trainees sponsored by employers. Training costs incurred directly by employers are refunded from the levy fund. The fund, the training programmes, and the supervision and control of courses are managed by the National Industrial Training Council with its particular trade committees. The Council is composed of representatives from government (Education, Labour and Directorate of Personnel Management) and the Federation of Kenya Employers and Central Organization of Trade Unions. The Council Secretariat is the Directorate of Industrial Training which is under the Ministry of Labour.

Lesotho

The Kingdom of Lesotho is an enclave within the Republic of South Africa, being a very small country with an area of 22,000 square miles and a population of $1\frac{1}{2}$ million.

General education is the responsibility of the Ministry of Education. It begins with primary school education of seven years' duration followed by junior secondary school education of three years' duration with a Junior Certificate obtained after a successful pass at the end of the third year.

The next two years are spent in a high school, at the end of which a General Certificate of Education 'O' level is obtained. The quality of pass at this level forms the basis of the entry qualifications of the National University of Lesotho.

Presently there are 1065 primary schools, 64 junior secondary schools, 22 high schools and one university.

Technical education is the responsibility of the Ministry of Education. Training courses are organized at the craft level in carpentry and joinery, brick work, electrical installation work, plumbing and sheet metal work, automotive and general mechanics, and basic electronics. These courses are of two to three years' duration and are offered at the four technical training institutes in the country. The minimum entry qualification is the Junior Certificate, with good passes in mathematics, a science subject and English.

One of the institutes, Lerotholi Technical Institute, is being developed into a polytechnic with introduction of diversified courses. A civil engineering and construction course of three years' duration is already in operation; it is to be followed by electrical and mechanical engineering courses in the near future. The Commercial Training Institute offers courses in business studies and secretarial work. Other courses envisaged in the future deal with the training of laboratory technicians and para-medical health assistants.

Presently, technical training within the country at various levels involves nearly 700 students.

Certificates are offered by the Ministry of Education except for external examinations such as the London City & Guilds Examination.

Employment Opportunities

Both the public and the private sectors are ready employers for trainees at all levels. Industrial training Acts are not yet operative in Lesotho as industrial development is still in its infancy. In spite of this, however, there is satisfactory co-operation between industry and the training centres and institutes.

Mauritius

In the field of technical education, the country has three state co-educational junior technical schools which run four-year pre-vocational education in woodwork, metalwork and home economics. In addition, one state secondary school offers technical and vocational courses alongside the more popular academic subjects.

In 1969 the country took a positive step towards producing the much needed manpower for industry. To this end an Industrial Trade Training Centre (ITTC) was established with financial assistance from the UNDP. This project was executed by the ILO. The Centre provides training in the following fields: electrical installation, auto-mechanics, welding and metal fabrication, plumbing and pipe-fitting, carpentry and joinery, masonry and concrete. Another centre is soon to be established in the northern part of the country to run the following courses: maintenance fitting, tractor mechanic, sheet metal work, cabinet making, upholstery.

The country has one university, a school of agriculture, a school of administration and a school of industrial technology, all offering degree and non-degree courses. There is also an Institute of Education which engages in educational research, curriculum development and teacher education.

Training within industry is a concern of each industrial organization. At present there is no partnership between educational institutions and industrial organizations. The country has formulated an industrial policy which anticipates an expansion of its export manufacturing sector to provide new job opportunities in order to eradicate the country's unemployment problem.

Nigeria

The Federal Republic of Nigeria consists of 19 States with a population of over 90 million. The educational system comprises six years of primary schooling followed by a single tier five-year secondary course and a tertiary system of teacher training, technical/technological or university education.

Entry into secondary schools is through a common entrance examination. Pupils who fail to gain admission usually find a place in teacher training colleges or vocational schools. Students who successfully complete secondary education tend to pursue further studies in higher schools, schools or basic/preliminary studies in preparation for the university. On the other hand, students who fail to successfully complete their secondary school education often seek admission into technical schools or trade centres.

Both State and Federal Governments can legislate on educational matters. Responsibility for overall planning, monitoring and co-ordinating education programmes lies in the hands of the Federal Ministry of Education. The Universal Free Primary Education project is one of the exercises currently being undertaken by the Federal Ministry of Education.

There are three levels of technical education in the country; vocational, technician, and professional. Although the first vocational/technical institution was established as far back as 1913, the progress of development of vocational-technical education has until lately been slow. Facilities for teaching and learning are now being expanded. It is expected that the polytechnics and colleges of technology will, by 1980, have a total student enrolment of 36,000 and that student enrolment in technical schools will be 118,000.

A new policy on education is currently being developed. An important highlight of the new system is the development of a three-year junior secondary system and a three-year senior secondary system. It is hoped that the curricula for the junior secondary system will incorporate a substantial technical-vocational component. At present craft skill training is largely institutional and is conducted in technical schools and trade centres

controlled by the State Ministries of Education. However, the Federal Ministry of Labour conducts limited trade tests for craftsmen trained in the non-formal educational institutions. Technicians are trained in the colleges of technology and polytechnics while professionals are trained in the universities. Whereas all the universities are owned by the Federal Government, the majority of the colleges of technology and polytechnics are owned by the various State Governments.

There is a National Board for Technical Education which is charged with the responsibility for co-ordinating and advising the Government on technical education problems which fall outside the jurisdiction of the universities. There is also the Council of Heads of Polytechnics and Colleges of Technology which in co-operation with industry is responsible for the preparation of syllabuses.

In order to encourage close co-operation between education and industry, the Federal Government in 1971 established the Industrial Training Fund to catalyse the process of manpower formation for industrial and commercial needs. The Fund is financed through levy contribution by employers and subvention by the government. In the past few years, the Fund has developed a number of programmes and schemes aimed at sharpening training awareness and bridging the gap between industry and institutions at various levels. One important scheme is the Student Industrial Work Experience Scheme (SIWES) by which students in some selected fields are given industrial attachment for a three-month period each year. There is also the Vocational Improvement Programme in which the Fund makes use of available facilities in existing trade centres and technical colleges in the evenings to provide courses for self-employed and other categories of tradesmen. The Fund also bears a proportion of the direct cost of worker training of its contributing employers.

The problem of the status of the technician is still very much with the Nigerian society. A feature of an industrializing society is that people who have been to schools prefer "white colar" jobs. The result is that most technicians gravitate into non-technical jobs.

Seychelles

The country offers six years of primary school education followed by three years of secondary school education. At the end of this, students may enter a technical school where they are trained up to the Trade Test level in all the subjects of the school, but for some the training is carried further up to the United Kingdom's City & Guilds level. In addition to the full-time courses, there are day-release courses, evening classes and short courses of about four weeks' duration.

There is a college which trains up to the General Certificate of Education "A" level. Successful graduates obtain grants or scholarships and proceed overseas for higher courses.

Sierra Leone

Pre-university education in Sierra Leone is in three phases: primary and pre-school, secondary education and technical/vocational education and training. Education is not compulsory, but 70% of primary school children are admitted to secondary schools annually.

Over the first three years of secondary education there is an average drop-out of 40%. Those students who obtain the West African Examinations

Council General Certificate of Education/School Certificate may pursue higher education at university colleges, teacher colleges and the Technical Institute.

Much foundation work has been done in technical and vocational education and training to provide the middle-level manpower needed in industry and the community. There are four full-time Government training institutions, namely the Technical Institute, Kenema, the Freetown Trade Centre, Kissy, the Magburaka Trade Centre, Magburaka, and the Technical Institute, Freetown. The last of these caters for technician-level training to City & Guilds of London Institute's standard for ordinary Technician Diploma in building and civil engineering, mechanical and electrical engineering, and telecommunications, and radio and television maintenance. There is also a two-year course in commercial and business studies leading to the Royal Society of Arts Ordinary National Certificate and Ordinary Certificate in Business Studies examinations. The other institutions restrict their intake to students from 15 to 20 years of age who have completed at least the third form of a secondary school. Courses conducted include all building trades subjects and basic engineering trades - a core course followed by one of the following study programmes: internal combustion engine, mechancial fitting/turning, electrical installation, refrigeration and air-conditioning.

There is a national advisory body known as the Technical Education Advisory Committee (TEAC) composed of representatives from government agencies and representatives from employers and labour organizations, industry and commercial sectors, and public corporations. The Committee is responsible for policy making, planning, and the co-ordination and integration on a country-wide basis of all vocational training activities. The TEAC is an important body especially in its role in establishing the apprenticeship scheme.

Areas of development include assistance under the IDA educational programme for additional facilities at the three trade centres. These facilities - production unit, science laboratory, library and dormitory - together with ILO/UNDP input of equipment will be adequate for both full-time and apprenticeship training.

The establishment of an Apprenticeship Authority is one of the priority areas of development. The decision has been taken that the proposal should be implemented jointly by the Ministry of Labour and the Ministry of Education. The Ministry of Labour will administer apprenticeship, and the Apprenticeship Board will be responsible to the Ministry of Labour.

The third area of development is the ILO input in establishing an Instructor Training Unit (ITU) to train instructors for the trade centres, run up-grading and refresher courses, and training officers for industry. To this end, experts in various trade subjects, instructor training and curriculum development have been assigned to the project. These officers will work with principals of all trade centres, review the curriculum, and set such standards as would be in line with the needs of industry and the community.

In the absence of an apprenticeship scheme, industry co-operates with authorities of existing training centres in implementing policy matters; a few accept students on attachment and assist in providing training materials. Graduates skilled in building trades are readily employed. There is also great demand for those qualified in commercial and business studies.

The vocational training manpower survey (1976) showed a 5% increase in employment compared with the figure in 1975. The report revealed that there are 25 apprenticeable trades.

Tanzania

There is a seven-year universal primary education, followed by a four-year secondary school system and a two-year higher secondary school programme. University degree programmes are of three to five years duration. Other post-primary systems consist of vocational-education, and teacher education including programmes for technical and science teachers.

At the diploma level, there are colleges and institutions which cater for managerial manpower development and middle-level financial management.

Higher school graduates do a twelve-month period of national youth service. University education is closely related to the demands of commerce and industry; as a result, no candidate can be admitted into the University unless sponsored by an employer. Each application is expected to be forwarded through the candidate's employer and through the local secretary of the Party. This arrangement is meant to ensure that there is a job for every university graduate. Political education is also available for those with leadership responsibilities (e.g. principals, headmasters and managers of corporate institutions).

Technical education in Tanzania starts at the primary school level where basic local crafts, metalwork and woodwork are introduced. This scheme adopts the modular approach with emphasis on "how-to-do". At the secondary school level, there is a further emphasis on technical subjects.

Since 1971, vocational education has been incorporated into the secondary school system. A cost-reduction exercise has been devised to enable some secondary schools to offer diversified courses in technical education, agricultural education, business and commercial education, and domestic science. Students pursuing technical education take trade tests administered by the Tanzanian Ministry of Labour.

The training of craftsmen which used to be under the Ministry of Education was made the responsibility of the Ministry of Labour in 1965. However, in 1969 craft skill training, which used to take three years in trade centres, became organized in two stages - a one-year course at a trade centre followed by a three-year industrial attachment. To further emphasize the importance of vocational training, the Government has now established a Vocational Training Council. This Council has three vocational training centres with a total annual student intake of 1,200.

Attempts to make technician training more responsible to the needs of local industries began in 1971. Candidates for this level of training are expected to have attained the Form IV Certificate of the National Examination Council. The full technician certificate course lasts for three years. Each academic year consists of three twelve-week terms at college and one ten-week term devoted to training in industry. The curricula for these courses are developed jointly by representatives of the Ministry of Education, industry and other employers.

Uganda

The educational system in Uganda starts from the kindergarten stage

followed by a seven-year primary school education. About 80% of the products of the primary school system do not proceed further with their education. Therefore, emphasis is now being placed on craft skill training to absorb these drop-outs. Programmes to absorb this group include youth programmes, teacher education, and young farmers' programmes.

There is a four-year secondary school programme leading to Ordinary Level Certificates for those who are able to continue further. Secondary school subjects include a number of vocational courses like technical drawing, woodwork, metalwork and home economics. Graduates of secondary schools find their way into any of the following: higher schools, teacher training, technical and commercial institutions and departmental training. After two years of higher schooling, graduates proceed to university, higher technical and commercial colleges, Grade 5 teachers' colleges and departmental training.

The majority of courses at the higher technical college are run in conjunction with employers on a sandwich or day release basis.

The overall responsibility for administration of schools lies with the Ministry of Education which maintains direct links with post-primary and tertiary institutions.

There are ten schools which offer three-year courses in technical subjects. Candidates for admission into these schools are selected from primary school leavers. On successful completion of courses, a junior technical certificate is awarded. Some of the courses offered include carpentry and joinery, concrete practice, plumbing, and electrical installation. These schools provide the only opportunity for obtaining technical skills to 80% of the primary school leavers.

There are also five technical institutes which offer two-year craft and advanced craft courses of the East African Examinations Council. These institutes operate at post-secondary level. Graduates of these institutes may continue their courses in technical colleges where diplomas and certificates are awarded at both ordinary and higher levels.

Technical training in Uganda is geared to industrial requirements. In fact, the syllabuses for technical institutions are prepared by the National Advisory Committee on which industry is adequately represented. Furthermore, industries sometimes sponsor students for courses in technical education institutions. There are also in-plant training arrangements to adapt and up-grade skills. At the international level, there are co-operative agreements with the ILO and UNESCO to advise and assist with the development of industrial and technical teacher training.

Zambia

The educational system of Zambia, a country of 5 million people, includes seven years of primary level, three years junior secondary and two years senior secondary. National service, lasting 20 months, is undertaken by all students after completing senior secondary education. Entry to university and other institutions of further education is possible for eligible students after national service.

From 1920 to 1960 government and missionary organizations offered skill training in workshops attached to primary schools. After independence some of these facilities were closed down due to lack of employment oppor-

tunities in spite of demands for skilled workers in some industries. In 1968 the government decided to expand technical education and trade training by setting up a Department of Technical Education and Vocational Training. Under the Technical Education and Vocational Training Act, 1972, a policy concentrating on full time pre-employment technical education courses was established. This approach was preferred to a more traditional apprenticeship system.

The Department for Technical Education and Vocational Training (DTEVT), initially under the office of the President and later taken over by the Ministry of Education, has 14 institutions offering training in craft skills, technical teaching, technician and technologist work. A National Council for Technical and Vocational Education oversees this programme and also the work of private institutions.

Programmes based on curriculum charts accepted by government and industry lead to the award of certificates by the Zambian Examination Council. Most of the examinations have been localized, with the exception of paramedical and air-services courses, which are externally assessed.

Certificate awards are made by examinations and continuous assessment. Industrial attachment reports are also used for final assessment.

There is a problem in finding suitably qualified and experienced teaching staff for paramedical, mining engineering and air services programmes. The high demand from industry for persons with such qualifications makes it difficult to recruit and retain them in the teaching profession.

Since the DTEVT was established in 1969, the partnership between the training institutions, commerce and industry has improved. Representatives from industry serve on national and local bodies for technical education and training. Teaching staff are given attachments to industry, and staff development programmes are being developed. Some industries have established training centres, offering programmes approved by the DTEVT.