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THE STRUCTURE OF INDUSTRIAL TRAINING IN KENYA AND THE ROLE OF THE DIRECTORATE OF INDUSTRIAL TRAINING

by

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ABSTRACT

The paper presents an overview of technical education in Kenya as well as of the wide variety of industrial training domains, and the important parts they each play in the total structure of industrial training. A comprehensive discussion, and a good deal of data concerning training schemes of the Directorate of Industrial Training are presented. An effort is made to highlight the variety of issues and problems involved in the industrial training levy and rebate system, particularly with regard to the effect of formal training under the system upon other types of training. Special attention is drawn to the nature of overall training needs in the economy and the appropriateness of the response by existing institutions. The paper presents a cohesive view of the scope and interrelationships of industrial training activity in Kenya.

INTRODUCTION

The historical model has usually been for education to follow or at best to parallel economic development, with perhaps a simultaneous interaction, but a variety of factors have combined in Africa and the Third World which try to force education to lead. Education has been under both political and economic pressure to lead and to provide an "engine for growth" due to the high private and social rates of return which accrued to investments in education for a number of years. More recently, public and private signals for educational investment began to diverge significantly, but continued high private demand translates into political pressure on the supply of education. As a consequence, the output of the education system has expanded faster than the rate at which it can be absorbed by the economy, yet still leaving certain areas of labour skills in critically short supply. The education systems in most developing countries were adopted from or modeled after systems in advanced countries and therefore are not designed either to lead or to deal with immediate short-term shortages. Does the job to be done determine the training(amount, content, etc.) as it should, or is an external and possibly irrelevant standard imported from outside the local labour market context? The report of the ILO mission to Kenya concluded that "... the education and training imparted is of the wrong kind in view of the skill needs of the economy...". (12, p. 70) This is not to say that the formal system is an inappropriate response to effective demand for training, but that it may be inappropriate to wider training needs which are less visible.

When the issue becomes that of industrial training in particular, the incompatibility becomes even greater. Advanced countries are concerned with advanced technologies, sophisticated skills and the upgrading of an already well-trained and industrially oriented labour force. Developing countries, on the other hand, are faced with a shortage of even the rudimentary industrial labour skills and thus require a training system designed to impart this basic level of competence, as well as to prepare the individual to be able to benefit from future on-going, skill-upgrading instruction. African countries cannot afford the luxury of a system which produces labour skills independent of inputs from the labour market and which then relies on the necessary adjustment and retraining to take place in the market with costly inefficiencies of time and investment. As one observer put it, "... African schools may be forgiven if their graduates are unemployed, but not if they are unemployable". (McNown, 29, p. 52)

The present paper is intended as a general guide and introduction for those who are unfamiliar with the scope of industrial training activity in Kenya. As such we will not attempt an exhaustive discussion of all the elements in the various training sequences, nor of the complete details of various training institutions. Rather, in Part 1 we summarise some of the history of training reviews and studies in Kenya, including a description of a recently completed survey, as well as some observations and assessments on the nature of industrial training in the development context. In Part 2 we will attempt to present a broad picture of the structure of technical education and industrial training, with a cursory description of the major components and references to more detailed discussions in the literature when and where they exist. In this sense Part 1 and 2 serve as a bibliographic reference source on training in Kenya. As the emphasis is on industrial training, especially formal, modern sector activity at craft and technical levels, no effort is made to consider professional, managerial, university or agricutural training, although these are important topics in their own right. Finally, Part 3 is a more detailed examination of the activities of the Directorate of Industrial Training (DIT) in the Ministry of Labour, which is playing an increasingly important role in the overall industrial training activity of Kenya, through both the operation of the National Industrial Vocational Training Centres and the establishment of national programmes and standards.

1. BRIEF HISTORY OF TRAINING REVIEWS AND STUDIES

Kenneth King, in his studies of informal sector skill acquisition, has traced how the old, indigenous processes of training have been affected by the transition to a new, modern form of instruction and training. (26, chapter 2) This has essentially involved the attempt to move from an indigenous apprenticeship or learner system, which has no certificates or standards and where the learner may pay for his instruction, to a formal, government-sponsored apprenticeship programme that is an extension of formal secondary technical schooling. The new system involves training contracts, legally enforced wages and certification of skill levels. The old system, though illegal, is difficult to suppress, especially in the informal urban secor as well as in the rural areas. (Mikkelsen, 30) One result of the transition has been the replacement of non-citizen, mostly Asian fundis (skilled craftsmen) with Africans from within the given firm. These local replacements generally have no formal certification but are qualified by long years of experience.

The result of this process of adaptation of indigenous apprenticeship has been less demand for the new formal apprentice trainees than was originally anticipated and consequent difficulties in placement of potential apprentices. The problem of relating demand for skills to demand for training is a difficult one, stemming from an absence of standardised skill and job definitions in industry, and especially from the fact that firms can and do obtain training from a variety of non-institutional sources, including "learning by doing".

Mutiso provides a brief history of the post-independence development of formal technical education at the secondary level up to 1968. (31) In discussing the growth of schools and enrollments he places special emphasis on the problems of negative attitudes and aspirations regarding technical training which are hangovers from colonial values. Problems of improper educational choice and subsequent frustration also received considerable attention in the report of the ILO employment mission to Kenya. (12)

With the advent of more extensive institutionalised and formalised training on a variety of fronts following independence, and with a substantial role played by foreign donors, there arose a greater need for a sense of overall direction and co-ordination of training activities, especially from the point of view of the government. Recent surveys of training have generally focussed on one or both of two main approaches: 1) a basically pedagogical and administrative consideration of the optimal type and structure of formal training and its objectives in the local context, and/or 2) an attempt to assess the magnitude of various skill deficits and thus of training requirements in relation to supply from the known formal training facilities available.[1]

Government-sponsored training reviews since independence in Kenya have been broad in scope, covering all types and levels from top management to clerical, industrial, technical, agricultural and various specialist areas. These reports have dealt with both the public and private sectors of "modern" economic activity, i.e. effective demand for training. They have been

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1. An excellent history of the changing trends in thinking on education and training and of the relation of international policy to local implementation, especially during the colonial period in Africa, is found in King (26) chapter one.

conspicuous in their neglect of rural and informal skill learning, i.e. overall training needs, and have instead directed much of their attention to public sector training, especially for civil servants. This may be understandable considering that the public sector provides about 40 per cent of all modern wage employment. The major training reviews have been the report of the Adu Committee (1964), the Ndegwa Report (1970-71), the Wamalwa Report (1971) and the Advisory Mission on Curriculum Development (Bessey Report, 1972).

In addition to these reports, all the development plans, manpower surveys and the ILO mission report have had something to say about different types of training, mainly by citing the current and projected gaps in demand and supply of various categories of trained manpower as evidence of the need for increased training effort. The Wamalwa Report was the most comprehensive of the special studies, as its terms of reference included total training policy, programmes and priorities for Kenya. It coincided with the passing of the Industrial Training Act (1970) which marked a major new departure in the area of industrial training and which reflected many of the changes in training philosophy recommended by the Wamalwa Report. For example, the Report concluded that the emphasis of training"...must be on development of effective job performance...", that the responsibility for training "must be based on the organization" and finally that "technical training should be conducted on a national basis which makes the best use of scarce and costly resources". (25, pp. 9, 11, 25)

In the area of industrial training, this and other reports have been hampered to some extent by a lack of standardised occupational titles and, more importantly, of the related skill/task descriptions by which to accurately specify relevant training needs and formats. In fact, the Wamalwa Report stated a "need for task analysis". Thus these surveys have remained rather cursory in their treatment of instruction for specific skills. By their very nature they can only hope to identify the broad philosophies, goals and priorities for formal training effort and perhaps some guidelines for how such systems should be organised. A result of not having uniform skill definitions was the apparent inconsistency in consecutive manpower surveys in 1967 and 1972 and contradictory conclusions concerning the areas of greatest training need by different studies. (Godfrey, 8, pp. 20-23) An example of the difficulty in standardising for skill levels is found in one observation from the Manpower Survey of 1972, which found that 80 per cent of all skilled manual workers then employed had no formal education beyond primary school and hardly any institutional vocational training. The

result has been that surveys have tended to assume a demand for skilled labour and training based on the need implied by their arbitrary assignment of minimum skill prerequisites for various occupations.

More to the point, there had never been a thorough-going review of purely industrial training, both formal and non-formal, in employable skills for modern sector, largely urban employment. However, in 1971, the Ministry of Finance and Planning undertook a first step in that direction by conducting a survey of training institutions. The survey did not attempt to cover all training activities and was non-exhaustive in the areas it did review, especially in its coverage of private firms' training because "the whole area of trade-testing and on-the-job training, in fact, does not fit neatly into a survey of this kind and was found to require separate treatment". (8, p. 4)

An excellent follow-up survey based on the Ministry's effort was carried out in 1972/3 by E.M. Godfrey. (8) As its point of departure, this study looked at institutions providing training in fields where the proposed harambee institutes of technology intended to operate, in an effort to assess comparative enrollments, costs, staffing and output capacities among institutions in the relevant occupational areas. The results, though based on a limited number of insitutions surveyed, are suggestive of important relationships between size, type and level of training, and costs. (8, pp. 26-28)[2] Although the National Industrial Vocational Training Centre (NIVTC) was not explicitly included in the survey, Godfrey's paper presents the information that was available about the early years of operation of the scheme. More recent data are presented in Part 3 of this paper.

The Ministry of Labour through its agency, the Directorate of Industrial Training (DIT), and with technical and financial support from the International Labour Office, recently conducted another such survey of training institutions as part of a comprehensive Survey of Industrial Training in Kenya. Martin Godfrey was again retained to carry out the survey of institutions. Both the recent and previous work by Godfrey relate to a number of the training facilities mentioned in the following section and references are made in the appropriate discussions.

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2. For example, there are economies of size, non-boarding proportion and the amount of part-time enrollment.

An important addition included in the recent survey was its attempt to go beyond formal, institutional training and to determine the nature and extent of employer-operated, in-plant training activities, both formal and informal. This is consistent with the desire of the Ministry of Labour to develop a long-term manpower plan for Kenya. (22) A comprehensive survey of employers was scheduled for 1976 as part of the next manpower survey, and will augment the results of an in-depth sample interview which was completed in early 1975, which are included in Godfrey's ILO report. (10) The in-depth survey was an attempt to compile some preliminary job description information toward the formulation of a standardised job title code for Kenya. Such a code would improve the relevance of training and testing standards as well as improving the consistency and comparability of future surveys.[3] The interviews were conducted with a small sample and responses were received from 64 out of 83 employers chosen. Even with this limited group, the results have shown the small amount of formal employer-operated training of workers in the skilled, semi-skilled and operative categories, and the overwhelming predominance of informal, on-the-job learning. This is consistent with earlier conclusions by both King and Godfrey and suggests the need for further study and perhaps inclusion of such training in the formal sector as part of a co-ordinated national training policy which can benefit from what private sector skill transfer methods can contribute to institutionalised instruction.[4] (See Part 2.) It would appear that the predominance of informal training in industry could have significant implications for attempts to introduce more formal programmes under the Directorate of Industrial Training. We consider these in Part 3.

2. FORMAL EDUCATION SEQUENCES

In order to put the total structure of Kenyan industrial training in a sharper perspective we can first examine flow paths in the formal

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3. For a further discussion of these and other aspects of the Survey of Industrial Training, see Wiese (33).

4. Godfrey (8) has suggested that, as a minimum, the NIVTC in its early years merely formalised what was already going on in industry and could conceivably have made no net contribution to the total number of skilled workers produced. More significantly, he notes that the number of Trade Test candidates, which far exceeds the numbers trained in all formal institutions, is an indication of the magnitude of training going on elsewhere. Similarly, see King (26) chapter three.

technical education sector and various alternative end points to which students are channelled. This is represented schematically in Figure 1 which depicts the ways in which formal technical education options have an interface with various forms of what we can call industrial training.[5] The intention here is to include only those institutions whose major function is technical education or industrial training on something of a general basis. The distinction between education and training is often a hazy one, which Staley has perhaps addressed most helpfully:-

> In the context of preparation for occupational roles, 'education' means instruction and learning broadly relevant to performance in all or a considerable number of occupational roles....'Training', on the other hand, is instruction and learning concerned with good performance of a specific task or set of tasks making up a job or occupation. The distinction ...is mainly one of degree of specificity. (32, p. 10)

In Figure 1 we see that formal institutional training can occur either following upon or concurrently with formal education (e.g. secondary technical schools). Time spent in an education/training sequence can vary from nine to sixteen years for completion (longer with on-the-job training), with the training portion varying from one to four years depending upon differences in type and level of sophistication of skill. Access to institutions depends, among other things, mainly on the level attained and performance in formal education (e.g. access to polytechnics or university), availability of money for fees (e.g. harambee institutes), or geographical proximity of a suitable instituton (e.g. Christian Industrial Training Centres).

In order to discuss some of the components which make up the intermediate and end points in training sequences we have to begin with the basic source of intake - the primary school leavers. This is an area where the supply of students is growing. In 1974 the government initiated a policy of free primary education from Standard I through IV. The effect on Standard I enrollment was dramatic, as can be seen from the following figures:-

1960 - 179,560
1973 - 379,370
1974 - 967,794.

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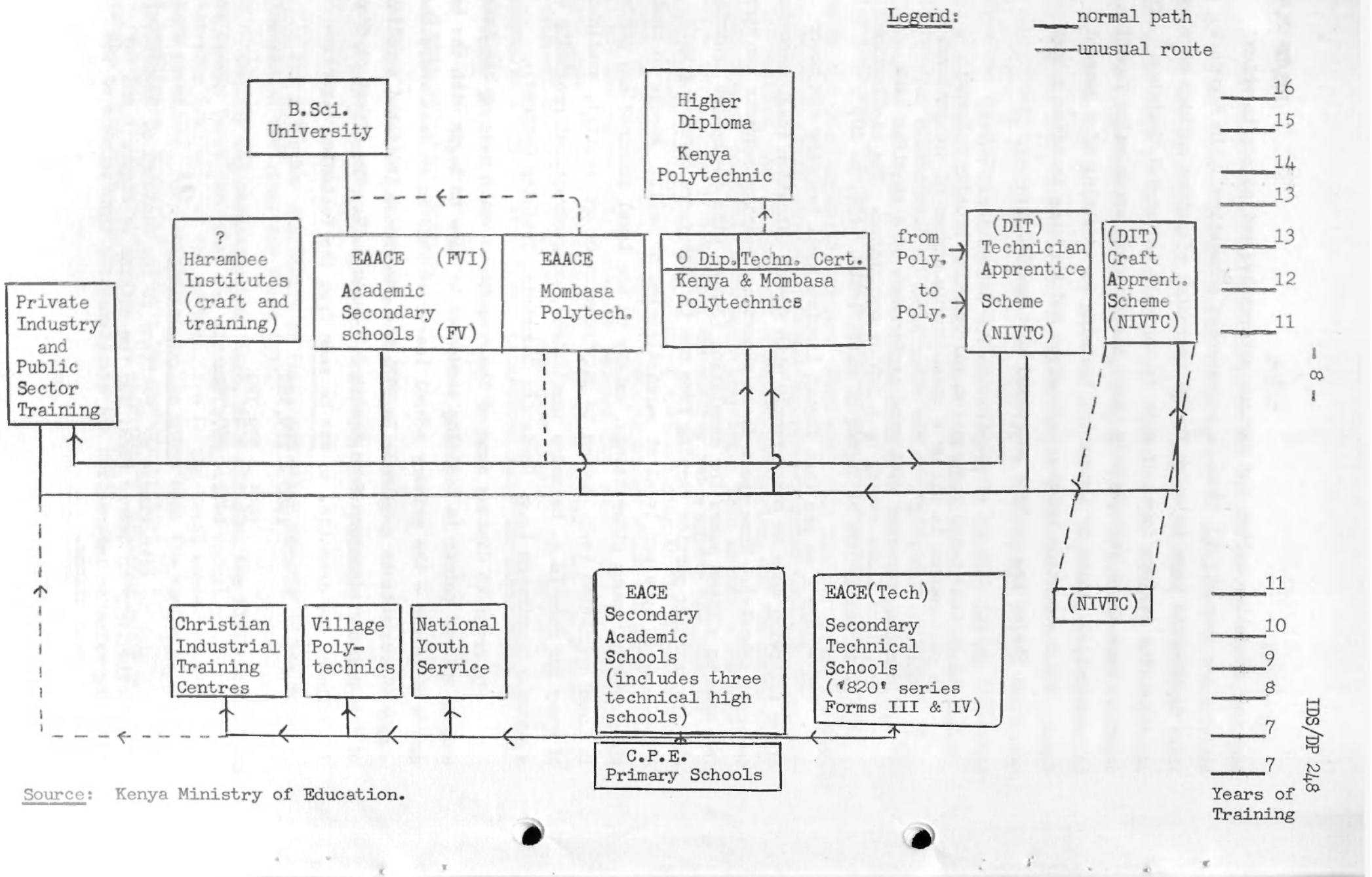
5. I wish to acknowledge my gratitude to the Ministry of Education, and particularly to Cedric Park, for the outline of Figure 1 and for providing valuable information and assistance for this section of the paper on institutions.

Figure 1. Technical education and industrial training.



Source: Kenya Ministry of Education.

It is likely that Standards II to IV have also shown sudden increases in enrollment as previous drop-outs were able to return. Although the long-term effects are unclear, it is likely that a substantial number of students will be unable to continue beyond Standard IV. Nevertheless we can expect that some proportion will be able to continue on through Standard VII and the Certificate of Primary Education (CPE) to join the more than 150,000 primary leavers already being produced every year, and thus put additional pressure for places on the institutions shown in Figure 1. For example, data from the 1960s indicate that Form IV enrollment is roughly 10 per cent of the Standard I enrollment of a given cohort. If this relationship is to continue it will require at least a tripling of Form IV enrollment within a decade.

More important than a hypothetical calculation of the numbers of potential primary leavers is a consideration of how these people will be able to proceed within the system of further education and/or training. From the chart we see that CPE holders presently have two main institutional options: to try to continue the formal education sequence or try to enter an autonomous training institution. A fortunate few are accepted into wage employment and sometimes into a private firm's own training programme. The rest must be absorbed into agricultural, casual or self employment, or un-employment.

Autonomous Facilities

Christian Industrial Training Centres (CITC): These are found in Mombasa and Nairobi. (The Kisumu facility provides secretarial training for women only.) They attempt to provide instruction at a low craft level for boys who would not normally be able to receive further education or training. In July 1975 the centres began a process of self-examination to assess their future in the face of expanded formal government programmes which compete with them for sponsors of trainees in industry. The centres are confronted on the one hand with only 20 per cent employment of the 72 graduates of 1974 (in an admittedly bad year for industrial hiring), and on the other by an annual demand for places in the centres by 1,000 boys, only about 140 of whom can be accommodated. It is not clear whether the feedback effect of this low placement will reduce the number of applicants. Training is to Trade Test Grade III level (on a scale which goes up to Grade I) over a two-year course and rates of attrition and failure have been fairly low, especially in Nairobi. To date no decision has been made on possible modifications of the programme. See Part 3 for a discussion of the co-option

of these institutions by the rise in sponsored training. Also See Godfrey (8) and (10).

National Youth Service (NYS): A uniformed organisation within the Ministry of Labour, the NYS offers a two-year programme enrolling approximately 1,600 persons (mostly men) per year. The main vocational training unit is in Mombasa with a capacity of about 400 per year training to Trade Test Grade III in several craft trades. Some of those who complete this training are then able to receive further instruction as automechanics or electricians at the Central Workshop in Nairobi. (See 20 and 23.) The Service has had a successful history of job placement until recently, and employers have looked favourably on the personal qualities of its graduates. There is no indication of whether or how the programme of the Directorate of Industrial Training may affect vocational training in the NYS, although some co-ordination is likely to be necessary. See also Godfrey (10).

Village Polytechnics: These operate under the Youth Development Programme of the Ministry of Housing and Social Services. In 1975 there were 150 Village Polytechnics, of which 100 were government assisted. The current development plan anticipates providing a total of over K£ 1,000,000 in development costs for this programme. There are currently about 6,000 trainees undertaking courses in 35 skills. Most are CPE holders, but some have no formal qualifications. The objective is to train up to Trade Test Grade II, though this would seem to be beyond both the ability of most participants and the facilities themselves. The training is in fact at a lower level than that of the CITCs. See Ford (6), ILO (12) and Court (2).

In addition to the above institutions, primary leavers who are able to obtain a Grade III Trade Test Certificate, perhaps after a period of informal learning, may be accepted by the Kenya Industrial Training Institute in Nakuru, or by the Institute of Tailoring and Cutting which is run by the Textile Workers Union.

Formal Sequences Under Direct Ministry of Education Authority

The opportunity to continue in formal education is limited to the roughly 30 per cent of Standard VII leavers fortunate enough to obtain a place in one or another type of secondary school. See Somerset in Court and Ghai (3).

Academic and Technical High Schools: These were of three types in 1974:-

1) Maintained Schools - 375, enrolling 93,974 students in all forms. This includes three technical high schools at Nairobi, Nakuru and Mombasa

with about 2,200 students. Both academic and technical schools are completely funded by the government.

2) Assisted Schools - 17, enrolling 9,789 students in all forms. All academic. Generally the government pays about 50 per cent of salaries, recurrent costs and capital development.

3) Unaided Schools - 579, enrolling 92,016 in all forms. These include both harambee and private schools. There is no government funding except recently for some teachers in harambee schools.

These schools enrolled a combined total of 195,779 students in Forms I to VI in 1974. Entry to Forms V and VI for 'A' levels (EAACE) depends on performance on the 'O' level examination (EACE) at Form IV. In 1973, while there were 28,094 students in Form IV, only 7,177 were in Forms V and VI. These are mostly in maintained and assisted schools, as attrition due to costs and examination failures in unaided schools is severe. For example, the enrollment ratio of Form IV to Form I was 75 per cent in maintained and only 25 per cent in unaided schools in 1973. Even though some unaided schools only offer Forms I and II, and the better students are sometimes able to transfer to maintained schools after Form II, the difference is clear. In addition to the secondary academic schools which offer Forms V and VI, the Mombasa Polytechnic offers these forms to the better students from secondary technical schools so they may obtain EAACE for University entrance. This involves only a handful of students however.

Success on the EAACE can of course mean a place at University, but for the majority who only attain EACE there are still a number of options. Some will obtain employment and perhaps be involved in on-the-job training in either the private or public sector. Increasing numbers can be expected to turn to harambee institutes of technology as these become established and as other options, especially employment, become more difficult to attain. Some students go on to the polytechnics as independent students, although these institutions are primarily enrolled with employer-sponsored trainees. Technician apprenticeship with the Directorate of Industrial Training is yet another possibility for a few, but one which again has employment as a prerequisite. All of these options are discussed below. An ever increasing majority will turn to self-employment, casual employment or unemployment. See Kinyanjui (27) and (28).

Secondary Technical Schools: Nine of these schools are government maintained schools and two are assisted. The assisted schools are Sagana and Kajiado.

The nine government schools are found in Kabete, Mawego, Kisumu, Kaiboi, Thika, Meru, Machakos, Sigalagala and Rift Valley. Three additional schools are planned for Nyeri, Kitale and Mombasa and should become operational within the next two or three years. In addition, the Starehe Boys Centre is a fully approved assisted school for both academic EACE and EACE (Technical).

Growth in the number of technical schools and in their enrollment has been exceptionally slow, especially compared with the mushrooming of secondary academic schools through the harambee movement. For example, of 170 new schools in 1974, 23 were maintained, 108 were harambee (unaided), 38 were private, and only 1 was technical. Total enrollment in technical schools in 1974 was 3,659 in Forms I through IV, as compared with 3,051 in 1971, for about a 6 per cent annual increase. In recent years there has been a tremendous resurgence of interest in technical education resulting in a rise in the number who indicate a technical school as their first choice for secondary education, including some of the brightest CPE holders.[6] This growth in interest is the force behind the creation of harambee institutes of technology.

It is in the secondary technical schools that technical education and industrial training first begin to mesh in a significant way. Up until 1968, there were two types of so-called trade schools——junior and normal. They did not offer the academic option of a school certificate and consequently did not attract the best students; a problem compounded by the low esteem in which manual trades were commonly held. Partly as a result, employers were not pleased with the trainees produced. At this time the course was for three years and followed the '833' pre-technician syllabus based on the London City and Guilds. In 1971 it was decided to upgrade all these schools to full technical school status with a four-year course using the '820' series of basic craft preparation. By 1973 the change-over was complete and the secondary technical programme led to the academic qualification of an EACE (Tech) diploma. It appears that this academic status and the conferring of formal credentials were necessary for technical schools to gain wider acceptance, though they have added to other problems discussed below. Through cooperation between the Ministry of Education, which is responsible for all basic training (the '820' series), and the Ministry of Labour, which

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6. See King (26) pp. 38-39 for more on this "retechnicalisation" process in education.

oversees craft training through the DIT, the four-year secondary technical syllabus was designed to lead into the formal Craft Apprenticeship Scheme. In fact, the final two years (Forms III and IV) are credited as the first two years of what is otherwise a five-year apprenticeship.

The '820' syllabus is composed of two main areas: building, which includes specialities in masonry, plumbing and carpentry/joinery; and basic engineering, which encompasses mechanical, automotive and electrical specialities. Practical ability tests are given throughout the course and successful completion of these is required for the EACE (Tech) certificate. Though it is possible for a student to leave after Form II or III and, by obtaining employment, to be sponsored for a five- /or four-year apprenticeship respectively, the DIT prefers to accept only three-year apprentices from Form IV. However, some employers, notably within government, still insist on sponsoring Form II leavers.

Secondary technical schools do not see themselves as, nor are they intended to be, producers of an end product of employable skills. Rather, their graduates are expected to continue in formal training. Although this concept and the basic syllabus were accepted by employer representatives on the DIT, there have been difficulties obtaining proper equipment and instructional staff to successfully carry out the course at the expected standard. Placement of graduates with employers willing to sponsor them has proved difficult for this and a variety of other reasons which we will consider later. It had not been possible to place more than 30 per cent of the Form IV leavers of a given year into formal apprenticeship until 1974, when the figure reached nearly 46 per cent after a concentrated "selling" effort by the DIT. For the approximately 1,200 leavers at the end of 1974 there was once again a placement problem necessitating another strong recruiting push which resulted in less than 30 per cent placement. Part of the problem may lie in the slow rate of addition of industries to the levy system (see Part 3) plus the fact that 1974 was a generally poor year economically.

The Polytechnics: The Kenya Polytechnic in Nairobi and the Mombasa Polytechnic offer higher level technical training to EACE holders with English, Mathematics and Science credits from either technical or academic secondary schools. Students are normally sponsored by employers and may do a 27-month programme for either the Ordinary Diploma or Technician Certificate. At the Kenya Polytechnic a further three-year programme leads to the Higher

Diploma which is technician training at roughtly the level of first year of university.

Courses are based on exams of the East African Examination Council (usually derived directly from London City and Guilds exams) and are offered on a sandwich basis, with terms at the polytechnics alternating with periods of industrial attachment. For the Higher Diploma, exams are actually assessed by London City and Guilds. There are also substantial numbers of part-time evening students. The new Technician Apprenticeship Scheme of the DIT is designed to use the polytechnics for the institutional portion of training so that sponsoring employers from levied industries will now be entitled to rebates on approved fees and costs. (See Part 3.) Intake for both polytechnics in 1974 in the building and engineering fields was 417. Total enrollment, both full and part time, was 930 at Mombasa and 2,547 at Nairobi including those not in trade courses. See Godfrey (8) and (10). In his report for the ILO, Godfrey finds that technician enrollment accounts for about 40 per cent of all formal training enrollment - a disproportionately high share, especially relative to craft training. Of course this may merely highlight the fact that craft training can go on elsewhere, while technicians may require institutions and formal programmes.

Other Options

Harambee Institutes of Technology: These deserve a brief mention in spite of the fact that only three of the thirteen proposed were actually in operation in 1975. Only two, Kiambu and Murang'a, were able to offer trade courses to students at that time, but the mere existence of this strong local interest in technical education, as embodied in this latest harambee effort, is significant as evidence of a changing perception of employment opportunities and of what now constitutes education for employment. Whether these perceptions prove any more accurate or realistic over time than the faith in academic education which preceded them remains to be seen. Certainly the present perception leading to a large private demand for training by individuals is a response to the labour market signals of high wages and relatively good employment prospects. When these signals go unchanged, and when public sector supply response is limited, the private demand elicits a private supply such as the institutes of technology. This shifts the supply curve of training and leads to a situation of job rationing and rising unemployment. The rationing problem becomes all the more intense in a situation where government regulated training programmes are already putting pressure on the private

sector to create employment. Though ostensibly training for rural employment, the institutes are planning to accept EACE holders from academic schools and put them through three- or four-year courses to Craft Grade I or technician level, which certainly appears to be a more modern sector, urban orientation.

The institutes face severe financial constraints on their development since only selective aid for recurrent costs can be expected from the government once the facilities are established. They will also be competing for technical teachers who are already in critically short supply. The proposed fees of Ksh 3,000/= per year will be an insuperable obstacle for many otherwise qualified students, even though they are set at about half of what would be an economic level. Although a co-ordinating committee has been established by the Ministry of Education to advise harambee planners, there may be problems in directing the institutes towards training in 'priority' rather than 'prestige' areas, and in ensuring that their craft training standards meet accepted national criteria as these are set out by the DIT. Actually, cost considerations may discourage entry into prestige courses. The plans of these institutes count heavily on access to direct foreign aid from interested donors to cover buildings, equipment and staff. Further discussions can be found in ILO (12) p. 239, and Godfrey (8). The most comprehensive and detailed material is provided in a series of papers produced by the Ministry of Education. (4, 16 and 17)

DIT Programmes: Both the Technician and Craft Apprenticeship Schemes have been mentioned in relation to polytechnics and secondary schools. Part 3 of this paper is devoted to a detailed discussion of the Directorate of Industrial Training. At this point we need only mention that the apprenticeship schemes are based on employer sponsorship of trainees and are thus relevant to our discussion of public and private sector employer-operated training.

Private Industry and the Public Sector: Training in these sectors can be either institutional or internal, formal or informal, or a variety of combinations of these formats. Training in external, formal institutions, such as at the National Industrial Vocational Training Centres of the DIT or in the facilities reviewed above, is fairly open to the view of the interested observer. Similarly the in-service training programmes of government ministries are well-documented in various annual reports. In fact, in the past the government has been the sponsor of a large number of formal craft apprentices. The Ministry of Works alone sponsored 49 apprentices in 1974. In addition, the sophisticated training efforts of a few large

firms are registered in detail with the DIT. (see Part 3.)

But when we come to any formal programmes of firms outside the Training Levy of the DIT or those of smaller firms, to say nothing of the entire range of non-formal, in-plant training (on-the-job), we enter a region that has only begun to be explored. One cannot gainsay the importance of this other training. In commenting on the rather paltry number of non-government, registered apprentices during the period before the Training Act up to 1971, Godfrey observed, "Incomparably more important so far has been the 'unregistered' training imparted to many thousands in industry's own training schools or purely on the job". (8, p. 9; also see footnote 4) As we mentioned in Part 1, the Survey of Industrial Training carried out by Godfrey for the MOL/ILO was the first detailed effort at uncovering the nature and extent of this private training in the formal sector, let alone what we have yet to learn about informal sector skill acquisition based on King's pioneering work.

When one considers the vast numbers who presented themselves for (and passed!) government trade tests relative to the small numbers coming out of the formal programmes discussed above (8), and also the tentative evidence that formal schooling may do very little to explain test performance (9), one is forced to alter the perspective in which industrial training is viewed. It is certainly all too easy to point to impressive buildings, formal programmes, qualifications and certification procedures and assume that this is industrial training. Yet while the technical education system and formal training programmes may have an internal logic and consistency of their own, in spite of obvious mis-matches in the sheer numbers flowing between parts of the structure as discussed below, the fact is that the majority of students leave the system along the way just as in the general education ladder. Furthermore, formal training is geared toward the formally educated, and even more people never enter the formal system at all, yet find themselves in employment and even 'in-training'. When we remember as well that there are clear problems in the relationship of formal training to employment opportunities, as evidenced by recent placement problems with secondary technical graduates, we are convinced of the need for more study and examination of the nature of the demand for skills, the demand for training and the nature and extent of training activity engaged in by firms according to a variety of descriptive (and hopefully explanatory) character-

istics.[7] This may not only help to explain when, where and how firms might be expected to require and possibly provide training, but might also lead to a situation where the external, formal systems of training can adapt to and work with the private sector modes by filling in real voids rather than co-opting and substituting for existing informal methods in a perhaps less efficient way. This could reduce much of the resentment and resistance to formal programmes that we referred to earlier, and perhaps limit the unnecessary expansion of such programmes. As an ILO report observed, "It may well be that there is little formal in-plant training...because there is no need for it." (13, p. 82) It may be necessary to find alternatives to formal programmes, which will de-emphasise institutional training and encourage even greater on-the-job training than is already found.

Conclusions and Discussion

We have seen that most existing institutional training as well as formal technical education is, in fact, treated as preliminary to learning actual job skills at a productive level, which generally takes place on-the-job. It is thus not only skills which should be marketable, but the ability to learn skills. If institutional training can provide this ability, it may be of direct value to the firm in reducing the time cost of providing job training, at least for some of the more sophisticated skills. Balanced against this are some of the possible drawbacks of institutional training, discussed below, which merit further consideration by planners.

Technical education up through the secondary level in particular is, and should be, pre-vocational, making people trainable by giving them basic skills such as applied mathematics, use of tools, etc. and, perhaps most important and least achieved, a realistic appreciation of what craft work entails and what the actual employment opportunities and conditions are likely to be. The best way to achieve these objectives, and whether they can be achieved at all by any formal programme, have long been debated in the literature and continue to be topics for examination. (For example see Foster, 7, Blaug, 1, and Staley, 32.) It can certainly be argued that there is an over-emphasis on schooling as a pre-requisite for further technical training.

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7. A study of participation in DIT schemes under the Training Levy system in relation to employer characteristics is part of a current study by the author.

There appears, all the same, to be a need for at least some institutional training aimed at creating productive job skills, as evidenced by employers' expressed need for trained artisans and by the willingness of at least some firms to send trainees to formal centres. Of course we must ask how typical these firms are, or what special circumstances may have led them to use formal modes. For example, they may be large international firms with no previous experience of indigenous skill transfer methods or firms which are highly visible and subject to pressure to participate in formal schemes. The inability of most firms to mount formal training programmes of their own is generally attributed to the high costs of such ventures and the uncertain returns, due to high labour turnover from voluntary mobility and pirating in a seller's market for skills. But against this view one must weigh the alternative explanation of non-interest in formal training (see 13) due to the existence of some other system, less easily recognisable to the observer looking for institutional structure perhaps, but still effective for the main objective of teaching skills to workers. Informal training is likely to cost less, and to produce cheaper and perhaps more 'exploitable' labour as well. By 'exploitable' we mean in the sense of non-credentialised training so that a lower wage may be paid for skills which are equivalent to those of the higher wage certified trainee. King has shed the first light on some aspects of the process of re-adaptation of an indigenous training system in order to by-pass pressures toward the use of an "imported" training system, and has also noted that at some levels of skill acquisition the formal-informal dichotomy is not very sharp, with both training and labour skills flowing both ways between formal and informal labour markets. (26, chapter three)

Our discussion and the evidence from existing surveys lead us to at least the following observations:-

1. Most industrial training in productive, employable skills takes place on-the-job rather than in separate, formal institutions. This is true in both the formal and informal sense of in-plant training. For example, Staley has written that, "...occupational training in Nigeria, even in the modern sector, takes place de facto mostly in employment, and almost exclusively so in the intermediate and traditional sectors." (32, p. 112) Further evidence is found in Kenya where, even in the formal government-operated apprenticeship programmes, the overwhelming amount of training time is spent in supervised on-the-job instruction.

(see Part 3) In short, there are real alternatives to external, institutional training, especially at the craft level. At the same time it is obvious that training does not have to take place in institutions to be institutional. Certainly the apprentice schemes of the DIT have formalised and institutionalised the in-plant component of training through the establishment of explicit criteria.

2. Most of the so-called skilled labour is essentially generally trained and thus highly mobile among firms during a period of acute skill shortage, at least within broad industry groupings. This serves as an inhibition to training by many individual firms and was a factor considered in the establishment of the national schemes discussed in Part 3. While there is little direct evidence on labour turnover for given skilled jobs at the level of the firm, there is evidence from case histories of government Trade Test candidates in Kenya (skilled and semi-skilled manual workers) which indicates a high degree of voluntary job switching resulting in improved wages for the individuals involved. (9)

3. Secondary schools, including those designated as technical, turn out trainable labour rather than productively employable skilled labour. For example, in Kenya Form IV leavers of technical schools are intended to become registered apprentices for a further three years of employer-sponsored training. "Neither vocational nor technical schools aim at turning out finished craftsmen and technicians but rather at preparing their pupils for further training." (8, p. 2)

We might summarise these and other conclusions and criticisms by grouping them under three headings which describe major problem areas.

The Problem of Flows: We have noted that the now well recognised problem of general education also occurs for technical education. Namely that the formal system is oriented towards the top of a pyramid which few attain. Is the scale of the structure at fault for being 'too large' relative to the demand for its output, or is there simply a short-term failure at the upper levels to accomodate the internal flows? And what about employment opportunities at each level, which constitute the final test of the training's usefulness? There is no reason to expect that any but a small proportion of

the formally educated can be absorbed into modern sector wage employment, which totalled only about 300,000 in 1970. We have traced out how, for roughly 160,000 new CPE holders each year, only about 40 per cent (60,000) will find Form I places, and of these only about 1,000 will enter technical schools. The Christian Industrial Training Centres can accept about 150 and the National Youth Service about 1,600, only 400 of whom will receive vocational training. The village polytechnics will accept some, but many will have less than CPE. The total of all trainees is only 6,000. These trainees are not all the same individuals who leave Standard VII in a given year, but the numbers are illustrative. Far less than half of the annual CPE leavers are able to continue in any sort of structured programme of education or training, and even those who do are by no means guaranteed of success in obtaining wage employment later on. People coming out of all levels of the formal education and training structure are chasing the same limited number of opportunities for a modern sector, wage-paying job.

Within secondary education less than half the students reach Form IV and, although in technical schools the attrition rate is far lower, one finds that only a third of those with EACE (Tech) obtain the formal apprenticeship for which they have been prepared. With perhaps 12 per cent of Form IV leavers going on to 'A' levels and perhaps 500 students entering the polytechnics per year, we again find that for thousands of people there must be some other way to obtain training and employment if they are to receive it at all. And for those remaining in the system, the employment they eventually obtain may be far different than what they have been led to expect. Obviously the relative handful of students obtaining technical school places are, de facto, an educational elite who, though ostensibly being trained for employment in the manual trades, have perhaps a perfect right to anticipate a more prestigious and responsible job and rapid promotion as well, especially based on the opportunities open to their educational peers in the recent past. It is this attitudes and aspirations problem which employers are quick to identify in explaining their aversion to formally educated trainees who are seen to be "unwilling to work". It is a problem which has been exacerbated by the academic status held by the secondary technical schools. (King, 26, chapter three)

The Problem of Interaction: This might as easily be called the problem of interdependency since what goes on in certain training arenas is almost certain to have repercussions elsewhere. We have made references to King and his discussion of informal sector training, and of how policies for

formal sector training activity are sometimes resisted by indigenous apprenticeship systems and by the modern adaptations of these systems through internal promotion of labour. Certainly the nexus between policy and implementation is an important one with wider ranging consequences than are generally assumed. (see footnote 1) Perhaps equally important are the relationships between and among existing formal institutions, especially those we have discussed. At present the biggest concern for interactive effects must be directed to the Directorate of Industrial Training and the extension of both its formal programmes and of its jurisdiction and authority over all training activity. We have noted that the Christian Industrial Training Centres are assessing the impact of formal apprenticeship on their activities, and the National Youth Service and village polytechnics might be expected to consider this as well. The secondary technical curriculum is an example of adapting the education sequence to the formal training structure, as is the use of existing polytechnic courses for the Technician Apprentice Scheme.

However, negative effects are also possible. The development and extension of facilities may depend on whether the training to be offered can be registered with and approved by the DIT and perhaps made eligible for financial support under the Industrial Training Act. (see Part 3)[8] We have also seen that the proposed harambee institutes, in finding a way to make a useful contribution to the structure of technical education and training without redundancy or a sub-standard product, must take heed of the possibility that their programmes might either be made redundant by expanded programmes of the DIT or rendered obsolete by newly prescribed national standards of accrediting. There is also the possiblity that the private sector will continue to evolve its own new modes of training which allow it to avoid external institutions. Without acceptance by employers, no training can be relevant. The myriad problems of relationships, interaction and co-operation among training institutions lead us to the third area.

The Problem of Co-ordination: Where we have a distinction between education-centred and employer-centred training, with great variety within these groupings, it becomes necessary to look for some form of co-ordination. The creation of a focal point of authority and responsibility for broad level supervision of training activity and for formulation of training

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8. See Fine and Park (5) for a discussion of the particular problems associated with the effect of the coverage of the Industrial Training Act on the development of the Mombasa Polytechnic.

policy requires a knowledge of all components in the training structure to ensure that policy development is relevant to needs, that activity in various areas is consistent with overall objectives, and that implementation is in fact effected. Too often the question of how to implement a desired goal through policy is treated lightly and the results turn out differently than anticipated. This has certainly been the case where the response to policies designed to support formal apprenticeship has been disappointing because the programmes implemented were in fact as much employment creation as they were training strategies. There must also be a concern for co-ordinating the numbers flowing through each part of the structure in order to avoid bottlenecks and relative surpluses and shortages, in keeping with the overall manpower plan. There is certainly a need for co-operation among ministries especially between the Ministries of Education and Labour. In the rush to provide a range of training options, planners must not lose sight of costs, especially in terms of cost-effectiveness as compared among various methods of attaining a given level of skill training. Such an analysis is critical to the efficient use of resources and must take into account the nonformal as well as formal training modes.[9]

While there is presently no actively functioning administrative authority for overall training activity, the Directorate of Industrial Training is actually designed for that purpose, among its other roles. Figure 2 gives a brief summary of the existing domains of industrial training activity and responsibility. It is not a comprehensive picture and other observers may differ in the addition or exclusion of certain elements, but one can at least appreciate the diversity of current involvement in the policy for and provision of training in Kenya.

3. THE DIRECTORATE OF INDUSTRIAL TRAINING[10]

Introduction

In June of 1968 a plan of operation for a National Industrial Vocational Training Centre (NIVTC) was signed by the Kenya Government

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9. For cost comparisons among some institutions see Godfrey (8), p. 26.

10. The co-operation and assistance of many of the staff of the DIT and its ILO advisory team is gratefully acknowledged. Without it the preparation of this section of the paper would not have been possible. Special thanks and appreciation to S. Odera-Oteng' (Director of Industrial Training), H.P. Mwaura (Levy Accountant), and R. Hennequin, A.P.M. Grima and George Green of the ILO. Opinions expressed here are, of course, my own and do not necessarily reflect those of the MOL, DIT or ILO.

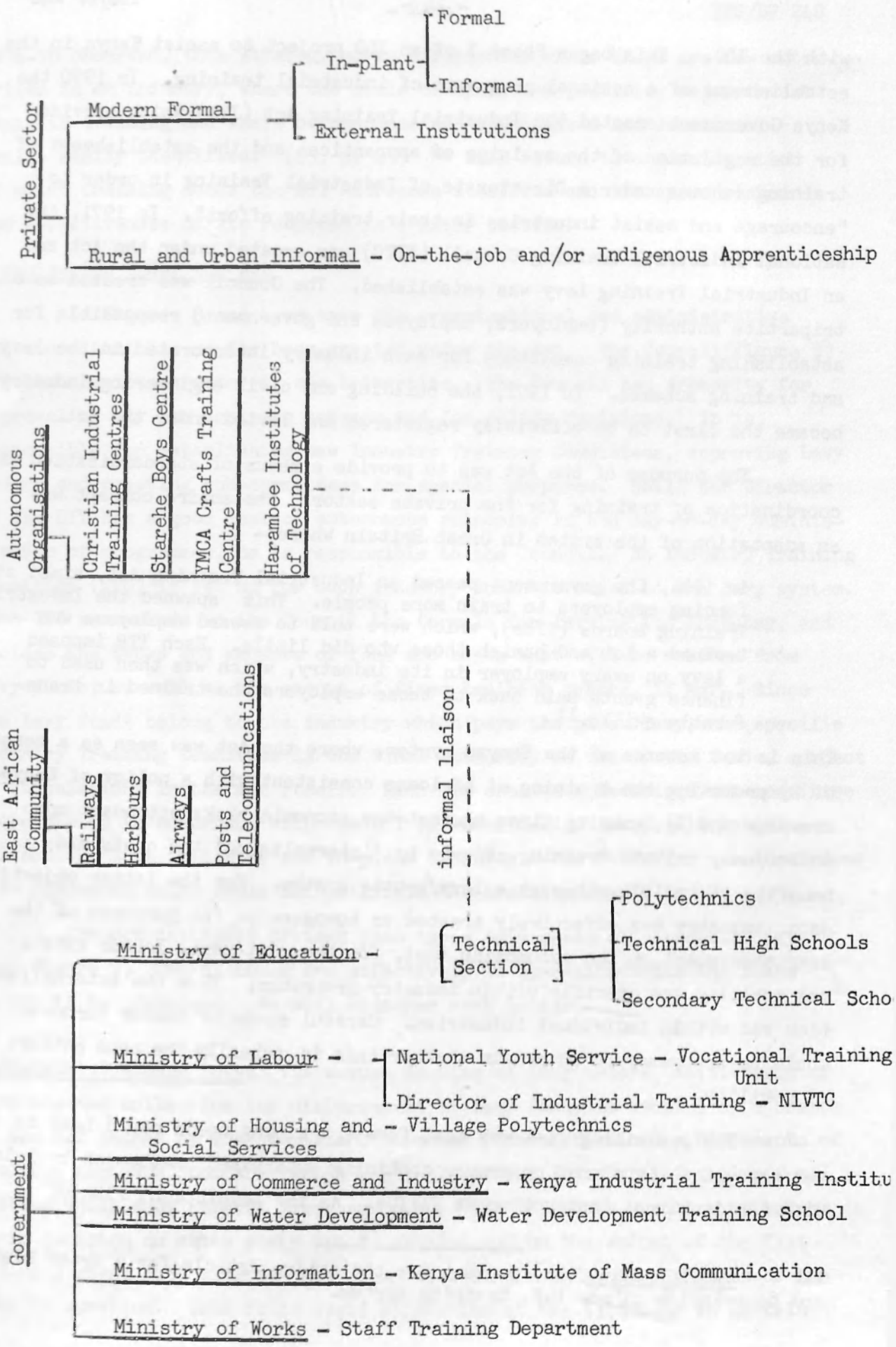

Figure 2. Domains of industrial training activity, 1975.

with the ILO. This began Phase I of an ILO project to assist Kenya in the establishment of a national programme of industrial training. In 1970 the Kenya Government enacted the Industrial Training Act (ITA) which provided for the regulation of the training of apprentices and the establishment of training schemes under a Directorate of Industrial Training in order to "encourage and assist industries in their training effort". In 1971, the National Industrial Training Council (NITC) was created under the Act and an Industrial Training Levy was established. The Council was created as a tripartite authority (employers, employees and government) responsible for establishing training committees for each industry incorporated in the levy and training schemes. In 1971, the building and civil engineering industry became the first to be officially registered and levied under the Act.

The purpose of the Act was to provide a means of standardisation and coordination of training for the private sector. The entire concept was an adaptation of the system in Great Britain where:-

> in 1964, the government passed an Industrial Training Act, aimed at forcing employers to train more people. This spawned the Industrial Training Boards (ITBs), which were told to reward employers who trained a lot and punish those who did little. Each ITB imposed a levy on every employer in its industry, which was then used to finance grants paid back to those employers who trained in transferable skills.[11]

This is the essence of the Kenyan system, where the Act was seen as a means of 1) promoting the training of Africans consistent with a policy of Kenyanisation and 2) insuring firms against the economic risks attendant upon individual, private training efforts by 'internalising' the costs and benefits of training through a levy/rebate system. For the latter objective, each industry was effectively treated as homogeneous for purposes of the levy assessment on the assumption that, for the most part, labour skills and mobility are specific within industry groupings. Thus the internalisation was within individual industries. Careful study of labour turnover would be necessary to ascertain whether this is actually the true pattern of mobility.

The prevailing view was that formal training needs could best be met through a structured programme combining supervised on-the-job training with institutional instruction at NIVTCs. As the Development Plan of

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11. The Economist (11) p. 76. See the entire article for a brief history and description of the U.K. training system.

1974-78 observed, this strategy works efficiently where there are few enterprises in an industry, where the scale of operation justifies major investments in training and where occupations are specialised and vocational skills easily identified. (15, p. 47) We will return to a consideration of which training needs the DIT addresses itself to and the appropriateness and effectiveness of its response in a later section.

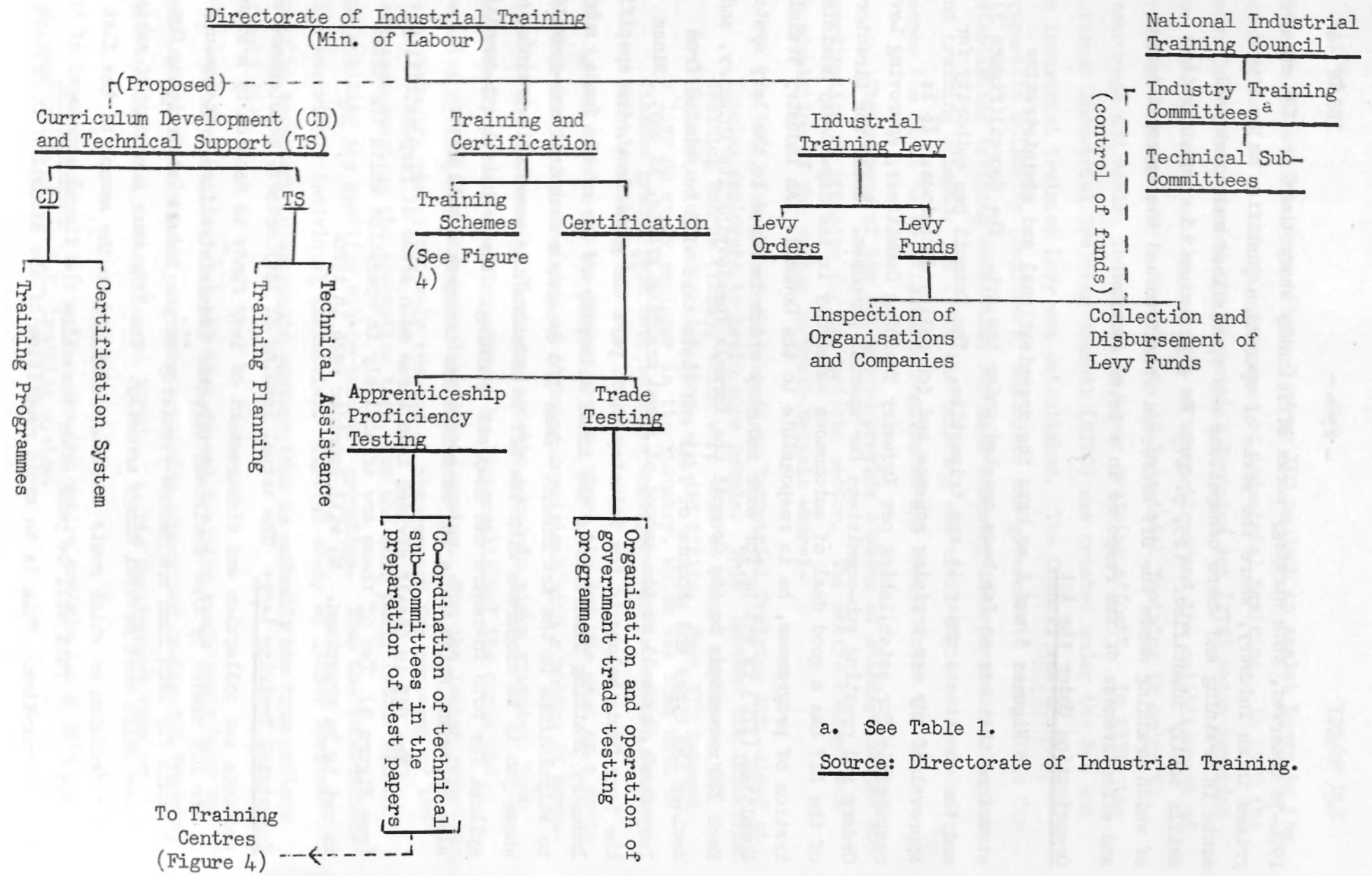
Organisation Under the Act

In Figures 3 and 4 we have the organisational and administrative structure that has so far been created under the Act. The Council(Figure 3) and the committees under it are tripartite. The Council has authority for approval of any new training schemes and for policy decisions. It is responsible for establishing new Industry Training Committees, approving Levy Orders and creating sub-committees for special purposes. While the Director of the DIT has a good deal of autonomous authority in the day-to-day administration of programmes, he is responsible to the Council. An Industry Training Committee (ITC) is set up for each industry which is added to the levy system. Each ITC recommends to the Council the formula for levying its industry, and decides the types and amounts of fees and costs that will be rebated from levy funds, as well as the amount of fixed training grants, if any. Since the levy funds belong to the industry which pays the given levy, the specific Industry Training Committee is the final authority on use of the funds, subject to stipulations in the Act itself. Each ITC creates a technical sub-committee whose job is to cooperate with the DIT in establishing acceptable training syllabi for both in-centre and in-plant training. The technical sub-committees also recommend which tools and materials the trainees should have.

The DIT is itself divided into three main areas of responsibility. (see Figure 3) Two of these are effectively in operation while the third is yet to be organised. We will consider each in turn.

Industrial Training Levy: The actual issuing of levy orders, maintenance of accounts and collection and disbursement of levy funds is handled by a branch of the DIT headed by the Assistant Director (Administration). Statements of accounts for each fund are issued regularly to the Industrial Training Committees which meet several times annually. The ITCs have a policy of making their decision on which costs are to rebated and on the amount of the flat training grant that will be paid after assessing the fiscal soundness of the fund in question. This is to avoid repetition of the situation in Britain

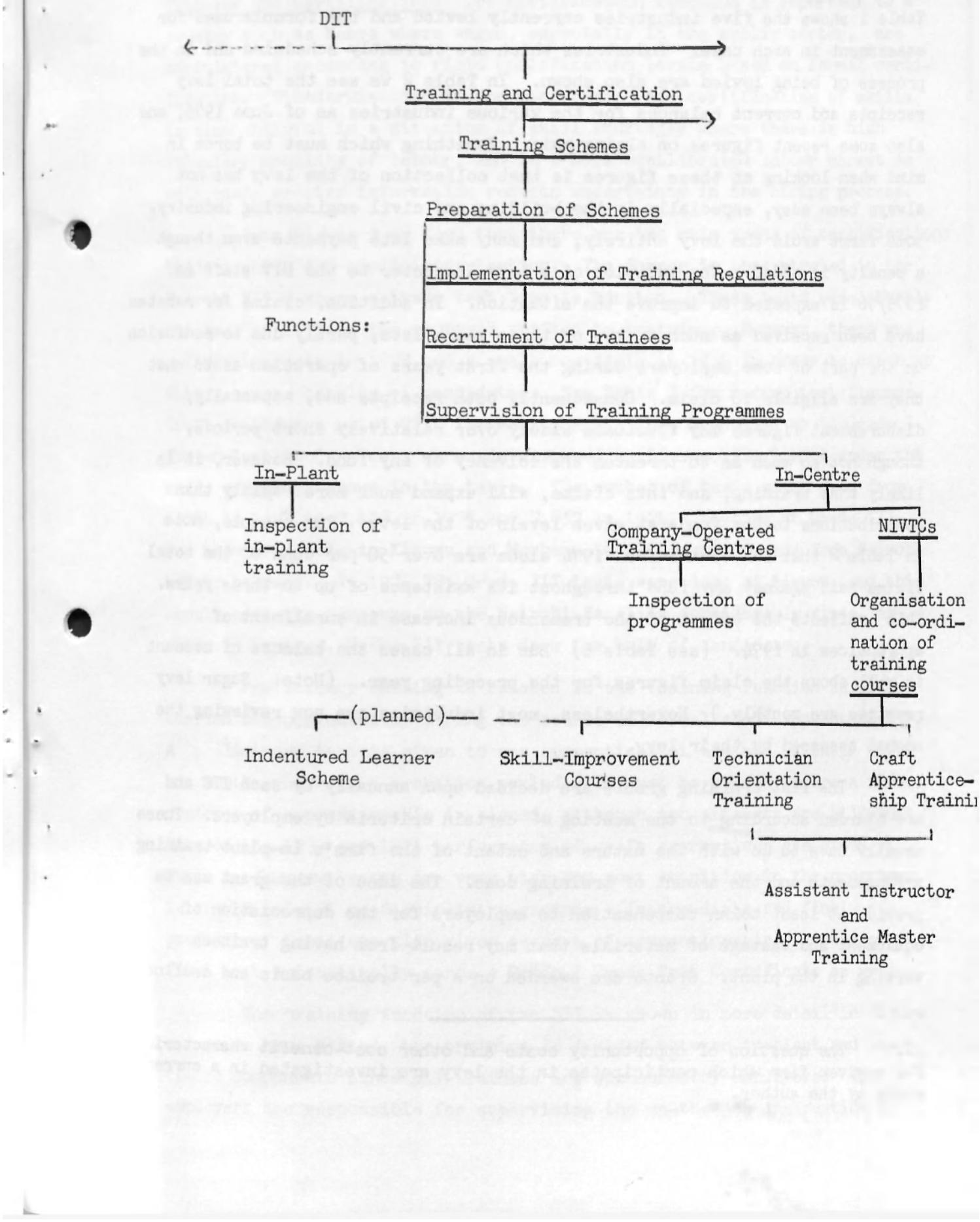
Figure 3. Industrial Training Act (1970).



a. See Table 1.

Source: Directorate of Industrial Training.

Figure 4. (cont. from Figure 3).



where a Training Board bankrupted itself. So far there has been no problem for any of the industries in Kenya. Rebates have covered 100 per cent of most direct training costs to firms and flat grants have been paid as well.[12] Table 1 shows the five industries currently levied and the formula used for assessment in each case. Industries which are currently scheduled and in the process of being levied are also shown. In Table 2 we see the total levy receipts and current balances for the various industries as of June 1975, and also some recent figures on claims paid. Something which must be borne in mind when looking at these figures is that collection of the levy has not always been easy, especially in the building and civil engineering industry. Some firms avoid the levy entirely, and many make late payments even though a penalty is added. The addition of a Levy Inspector to the DIT staff in 1975/76 is expected to improve the situation. In addition, claims for rebates have been received as much as two or three years late, partly due to confusion on the part of some employers during the first years of operation as to what they are eligible to claim. Consequently both receipts and, especially, disbursement figures may fluctuate widely over relatively short periods, though not so much as to threaten the solvency of any fund. However, it is likely that training, and thus claims, will expand much more rapidly than contributions to the funds at given levels of the levy. For example, note in Table 2 that the claims for 1974 alone are over 50 per cent of the total claims paid against any fund throughout its existence of up to three years. This reflects the effect of the tremendous increase in enrollment of apprentices in 1974. (see Table 6) But in all cases the balance of account is well above the claim figures for the preceding year. (Note: Sugar levy receipts are monthly.) Nevertheless, most industries are now reviewing the amount assessed by their levy.

The flat training grants are decided upon annually by each ITC and are awarded according to the meeting of certain criteria by employers. These usually have to do with the nature and extent of the firm's in-plant training arrangements and the amount of training done. The idea of the grant was to provide at least token compensation to employers for the depreciation of equipment and wastage of materials that may result from having trainees working in the plant. Grants are awarded on a per trainee basis and decline

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12. The question of opportunity costs and other cost-benefit characteristics for a given firm which participates in the levy are investigated in a current study by the author.

for each year of apprenticeship as the trainee's productivity is assumed to rise.

Training and Certification: The certification function is important to a country such as Kenya where wages, especially in the public sector, are administered according to rigid qualification levels based on formal certification. Standardisation in the measurement and certification of skills is also helpful in a situation of skill shortages where there is high voluntary mobility of labour, and in a more equilibrated labour market as well since greater information reduces uncertainty in the hiring process.

From Figure 3 we find that there are two main areas of certification: trade testing and proficiency testing. The former is concentrated in the Nairobi NIVTC where a trade test team is located. These tests were sharply cut back in 1971 as the emphasis shifted to training. However, there was a large increase in 1973 and a small one again in 1974 in order to catch up with a severe backlog of candidates. See Table 3 for recent test figures. Craft skills are rated with increasing skill from Grade III up to Grade I for an "artisan". Tests were administered in 35 specific trades under the major groupings shown in the table. The number of tests given rose from 5,524 in 1972 to 7,413 in 1973 and 7,857 in 1974. Testing at Grade III was made available in Kisumu and Mombasa in 1974, but testers from Nairobi had to be used. In 1974,785 Grade III tests were done at Kisumu, and this should ease the pressure on the Nairobi facility considerably since, as shown in Table 3, Grade III tests draw the bulk of candidates.

Proficiency testing is related to the training function as it is carried out periodically during the course of formal craft apprenticeship. A preliminary test is given to new apprentices at the end of their first six months which is a probation period. It must be passed before a formal contract of apprenticeship is signed, although two attempts are allowed. Data on the 1973 and 1974 performance of craft apprentices are given in Table 4. Success rates are very high and most attrition in the programme is from dismissal on disciplinary grounds. Intermediate and final proficiency tests are also given as part of apprenticeship. A pass on the final test automatically earns a Grade I Trade Test Certificate as well.

The training function of the DIT is shown in more detail in Figure 4. As we have stated, the training is divided between in-plant and in-centre components since all trainees are sponsored by employers. The employers are responsible for supervising the on-the-job instruction of

Table 1. Levied industries and industries scheduled for levy.

Levied Industries

Industry	Date of Levy	No. of firms[a]	Levy Formula[b]
Building and Civil Engineering	19 Oct. 1971	357	0.25% of total value of contracts in excess of Ksh 50,000; within 30 days of signing
Sugar	1 July 1972	5	Ksh 1 per metric ton produced per month; payable monthly
Motor Engineering and Transport	30 June 1973	144	Ksh 100 per employee twice yearly; payable Jan. and July on employment at end of preceding month in the designated categories, if more than four
Printing, Publishing, Kindred and Allied Industries	1 Feb. 1974	95	Ksh 50 per employee twice yearly; payable Jan. and July on total employment at end of preceding month if more than four
General Engineering and Metal Mfg.	1 April 1974	91	same as "Printing..." above

Industries Scheduled for Levy

Power and Communication[c]	1975	10	Ksh 200 per employee in designated categories, twice yearly; payable Jan. and July on employment at end of preceding month
Textiles[c]	1976	?	?
Sawmilling, Timber and Furniture[c]	1976	?	?
Food Processing, Chemicals and Pharmaceuticals	1976 ?	?	?

a. As of 1 June 1975; includes government ministries and agencies as well as private employers. The former includes the Ministry of Works, Government Printer, the National Youth Service, the Nairobi City Council, the Ministry of Home Affairs, and Municipal Councils.

b. These are the formulas as in the original levy orders. To date none have been changed although they are under review pending amendments to the Industrial Training Act currently before Parliament.

c. Training Committee exists.

Table 2. Industrial Training Levy Funds (as of 30 June 1975).

Total Receipts	Ksh
Building and Civil Engineering	5,926,661.05
Sugar	412,515.35
Motor Engineering and Transport	2,523,175.75
Printing, Publishing, Kindred and Allied	520,003.50
General Engineering and Metal Manufacturing	752,188.30
Total Levy	10,134,543.95
Investment Income	151,226.15
TOTAL	10,285,770.10
Total Payments	3,714,752.70
Balance on deposit and invested	6,571,017.40

Training Grants Paid	in 1974	Total	Levy Balance
Building and Civil Engineering	1,053,610.85	2,160,995.90	3,765,665.15
Sugar	187,931.10	360,377.20	52,138.15
Motor Engineering and Transport	517,202.60	983,151.20	1,540,024.55
Printing, Publishing, Kindred and Allied	-	-	520,003.50
General Engineering and Metal Mfg.	206,933.90	206,933.90	545,254.40
Total Grants Paid	1,965,678.45	3,711,458.20	6,423,085.75
Other Expenses		3,294.50	
Total Payments		3,714,752.70	

Source: Directorate of Industrial Training.

craft apprentices according to conditions set out by the DIT. All employers with trainees are expected to register their in-plant training arrangements with the DIT for inspection and approval, but to date this has been done by only seven employers (two of them in government), largely due to employer indifference and understaffing at the DIT. The approval of in-plant facilities is supposed to be required for trainees to be registered and for the firm to be eligible for rebates of fees and a training grant from the levy fund.

The in-centre training component can take place in either of two ways. Company-operated training centres may apply to the DIT to become fully authorised training facilities just like the NIVTCs. They may thus register their own trainees, award certification and qualify for grants if they are in a levied industry. So far only four firms have such facilities: Kenya Canners, Ltd., D.T. Dobie, Ltd., Hughes, Ltd. and Metal Box Co. The latter three are levied and may submit a report of their annual training expenditure to their particular Industry Training Committee which then decides upon a flat training grant to the firm as a reward/incentive for its training activity.

The more common route is for trainees to receive their in-centre instruction in an NIVTC, either in Nairobi or Kisumu. A centre for Mombasa is currently being developed to open in July 1977, although the Mombasa Polytechnic is currently running first-year apprentice courses in mechanical trades. The Kisumu Centre opened in October 1973 with staffing provided by Danish foreign aid (DANIDA) and offered only skill improvement courses for the first few months. In 1974 full craft apprentices were accepted and fourteen of these courses were offered, but skill improvement courses still drew most of the 530 trainees who attended the Centre. The DANIDA contract for instructors has been renewed from 1975 and the Mombasa Centre will be staffed by DANIDA as well. In fact, eight Danes will work with eight locally recruited curriculum development officers who will be trained as instructors and will prepare a training syllabus during the year prior to the opening of the Mombasa Centre.

The Nairobi Centre has been heavily dependent upon Canadian instructors for the past three years. Their contract expired in November of 1975 and, as sufficient local staff was simply unavailable (especially considering the competing demand by the secondary technical schools), the Centre was under serious pressure to find replacements. Thus far the only actions taken have been to advertise the vacancies locally and to rule out the acceptance of volunteer expatriate staff in an effort to encourage

Table 3. Trade test results, 1970 to 1974.

Grade/ Year		Mechanical/ Automotive		Electrical		Woodworking		Building		Tailoring		Miscellaneous		Totals by Grade, Year		
		pass	fail	pass	fail	pass	fail	pass	fail	pass	fail	pass	fail	pass	fail	% pass
	1970	121	150	75	64	32	134	76	141	7	7	9	8	320	504	39
	1971	147	161	15	13	18	78	71	83	5	7	2	13	258	355	42
I	1972	123	96	15	33	20	35	30	99	8	14	5	6	201	283	42
	1973	232	130	28	66	26	116	47	115	10	22	1	12	344	461	43
	1974	114	133	19	30	32	57	55	79	14	13	0	5	234	317	42
Gr. I Totals		737	670	152	206	128	420	279	517	44	63	17	44	1,357	1,920	41
	1970	323	598	74	105	53	309	369	367	1	4	3	10	823	1,393	37
	1971	294	336	38	44	86	210	232	67	23	22	29	27	702	706	50
II	1972	272	347	74	74	81	147	223	51	38	34	8	11	696	664	51
	1973	400	444	66	148	77	256	82	128	54	71	7	13	686	1,060	39
	1974	309	386	66	62	80	195	152	104	39	35	7	14	653	796	45
Gr.II Totals		1,598	2,111	318	433	377	1,117	1,058	717	155	166	54	75	3,560	4,619	44
	1970	1,688	1,793	239	344	799	1,505	923	481	22	54	28	93	3,699	4,270	46
	1971	819	778	125	98	405	275	556	46	82	54	123	148	2,110	1,399	60
III	1972	711	733	252	217	241	297	641	146	196	196	29	21	2,070	1,610	56
	1973	1,093	1,193	158	264	354	450	683	141	247	448	23	75	2,558	2,571	50
	1974	1,250	1,249	185	199	613	385	991	417	186	237	37	54	3,262	2,595	56
Gr.III Totals		5,561	5,746	959	1,122	2,412	2,912	3,794	1,285	733	989	240	391	13,699	12,445	52

Source: Godfrey (8); Ministry of Labour, Annual Report 1973 (21); Directorate of Industraial Training, 1974 Annual Report (24).

Table 4. Preliminary proficiency test results.

Trade	Enrolled 1973	Enrolled 1974	Enrolled 1975	Passed 1973	Passed 1974	% Pass 1973	% Pass 1974
Mechanical	37	146	125	34		92	
Electrical	41	60	60	39	NA	95	NA
Automotive	51	142	69	41		80	
Building	47	116	54	39		82	
Totals	176	464	308	153		87%	

Note: Complete results for 1974 were not available although it appears the pass rate exceeded 90 per cent for most trades.

Source: Ministry of Labour (20) p. 25.

Table 5. Technical School Form IV leavers by trade, 1973.[a]

Mechanical	393	
Electrical	252	
Automotive	216	
Agricultural Mechanics	550	
Carpentry/Joinery	50	Building
Masonry	25	
Plumbing	25	
Total	1,011	

a. These formed the pool for 1974 apprentice intake.

Source: Ministry of Education, Annual Report 1973. See Godfrey (10) p. 17 for 1975 data on placement experience of the 1974 Form IV leavers.

Table 6. Enrollment of craft apprentices by trade and year in programme.

	Year 1		Year 2		Year 3		Year 4		Year 5		Totals	
	1973	1974	1973	1974	1973	1974	1973	1974	1973	1974	1973	1974
Mechanical	37	146	12	33	-	11	1	-	-	-	50	190
Electrical	41	60	27	34	-	16	-	-	-	-	68	110
Automotive	58	142	31	58	13	29	6	13	2	6	110	248
Building	47	116	64	43	36	62	-	34	31	-	178	255
Totals	183	464	134	168	49	118	7	47	33	6	406	803

Source: Ministry of Labour (20) and Directorate of Industrial Training (24).

self-reliance. Utilisation of the facility rose from a maximum of 65 per cent in 1973 to an overload in 1974 when the intake of apprentices rose from 183 to 464 in only one year. In addition, much of the recruiting was done late, necessitating a rescheduling of the entire course timetable.

In early 1974 the governments of Italy and Kenya signed an agreement for the establishment of an Automotive Training Unit, with Kenya providing the building and Italy the staff and equipment. The facility should be ready sometime in 1976.

Training Schemes (Figure 4): Until a year ago the only officially established programmes were the scheme for training craft apprentices and occasional skill improvement courses. In late 1974 a scheme for training technician apprentices was also established, to begin in July 1975. Then in early 1975 the Council approved an awards scheme for training assistant instructors and apprentice masters which will essentially involve slight modifications of the craft and technician schemes, respectively. This last scheme is something of a crash response to the critical shortage of teaching staff, pending the building of the Kenya Technical Teachers College which is planned for Limuru. It will nevertheless be at least three years before any assistant instructors are produced through the DIT programme. The details of all these schemes can be found in a series of publications from the Ministry of Labour. (18, 19 and 20) In addition to these programmes an Indentured Learner Scheme has been envisaged for some time and has in fact been drafted, but has not yet been submitted to the Council for enactment pending revisions. Nevertheless, by mid-1975 employers had requested over 100 such trainees in anticipation of establishment of the scheme. The skill improvement courses are currently run on a rather ad hoc basis, as most organisational effort has been focussed on apprenticeship schemes. Since skill improvement courses involve only in-centre training for workers who are already employed, sponsors from levied industries are eligible for rebates of the course fees and of wages during the training period, but no credits toward a flat training grant are given since no in-plant facility is required. Casual observation suggests significant potential demand for skill improvement courses, and this finding is supported by results from the author's own survey of employers in October 1975.

Though the details are available in the publications mentioned above, a few characteristics of the craft and technician schemes are presented here for illustrative purposes.

Craft Apprenticeship. As we saw in Part 2, the craft apprenticeship scheme requires from five to three years depending on whether entry is from Forms II, III or IV. The normal pattern is for Form IV leavers to enter a three-year contract. (Table 6) The pattern of trade specialisation for Form IV leavers is shown in Table 5. After registering with the DIT and being placed with an employer, the trainee serves a six-month probationary period during which he receives twelve weeks of in-centre instruction. He must then pass the Preliminary Proficiency Test in order to sign a contract of apprenticeship with his employer. At the end of the first year and during each of the next two years, he spends six weeks at the NIVTC for further in-centre instruction, while his in-plant training is recorded in a log book for inspection by the DIT. Any personal tools required by an apprentice are provided by the employer but the cost is often recovered through monthly deductions from the apprentice's wages. In each year wages are based on a percentage of the wage of a Grade I artisan for the given industry and craft, according to the government minimum scale, as follows:-

Year 1	40 per cent
Year 2	50 per cent
Year 3	60 per cent (A 3-year apprentice beings at this level.)
Year 4	70 per cent
Year 5	80 per cent.

A difficulty arises in that two individuals learning the same trade but in different industries will receive different pay. This may act as an inducement to worker mobility, to the disadvantage of the employer in the low-wage industry who wishes to train but cannot keep apprentices.

The apprentice must pass both intermediate and final proficiency tests for successful completion of the programme. The Director of the DIT arbitrates in any disputes and determines whether those who fail will be given a chance to repeat a test. Currently the rebatable course fee at the NIVTCs is Ksh 60/= per week per trainee. In addition, apprentices who must travel from outside Nairobi are entitled to a Ksh 12/= per diem rebate from the levy. A hostel accommodating 132 students is nearing completion at the Nairobi Centre and will operate on a rebatable fee basis. As shown in Table 6, craft apprenticeship courses experienced a tremendous increase in enrollment in 1974 to nearly double the level of 1973, with more than double the first year intake.

Technician Apprenticeship. This is a four-year programme for Form IV leavers only. During the first year, trainees take a three-month craft orientation course at the NIVTC which is not the same one taken by craft trainees, and they must also pass a preliminary proficiency test. In the second and third years, thirteen-week terms at the polytechnics are alternated with thirteen-week periods of in-plant training, with Technician Part I and Part II examinations at the end of each year respectively. In the fourth and final year, there are three more months at a polytechnic plus nine months of supervisory training with the employer, including six weeks at an institutional management training course. The Technician Part III examination is then taken for the full certificate. Wages for technician trainees are set at a fixed monthly minimum for each year:-

Year 1 — Ksh 600/= per month
Year 2 — Ksh 800/= per month
Year 3 — Ksh 1000/= per month
Year 4 — Ksh 1200/= per month.

These were fixed arbitrarily, based on a broad spectrum of expected wages for a technician, and high enough to exceed a craft trainee's wage, but they are not tied to any existing scale and thus do not adjust automatically to changes in the posted government minimum wage scales. This oversight is being studied for possible correction. As of June 1975, only 30 of a requested 146 technician apprentices had been placed for the first intake of the programme, but recruitment was extended. Other conditions of apprenticeship are much the same as for craft trainees.

Note that in both of the apprenticeship schemes the vast majority of time is spent on in-plant instruction, with the in-centre time as a supplement. A recent administrative decision should also be noted: that the fees for eligible trainees under the levy are paid directly by the appropriate fund rather than by the employer, thus eliminating the time-consuming claim procedure by employers. This was particularly helpful to the building industry which operates on borrowed capital and has experienced a high annual rate of inflation, thus facing an increased real cost of training when it had to wait a year for rebates of fees.

Curriculum Development and Technical Support: As noted in Figure 3, this third area of DIT responsibility has yet to be developed, but it is the

mechanism through which the DIT may be able to deal with the problem of co-ordination, as discussed in Part 2. The two functions, curriculum development (CD) and technical support (TS), go hand-in-hand. Phase I (1968-71) of ILO assistance to Kenya for the development of industrial training focussed on establishing, equipping and staffing a training facility. Phase II (1972-75) had devoted more attention to setting up programmes, training apprentices, training instructors, and formulating curriculum and syllabus materials. While standard syllabi have been created for each trade, various instructors in the NIVTCs have interpreted them somewhat differently. A partial answer to this problem of uniformity may be found in the recent thrust of ILO activity toward designing a curriculum based upon modular units of job skills and the clearly defined tasks which comprise them. This is the approach which will be used by the DANIDA staff in preparing the courses for the Mombasa NIVTC. In the future, an apprenticeship might consist of the completion of a given number and distribution of modules.[13] This could reduce both the cost and duration of training as well as opening up access to training to a wider range of potential trainees than only those with formal education backgrounds.

The creation of a uniform, standard syllabus for all of Kenya, based on exact reference numbers for each module of training, may form the basis for an East African, or perhaps all-Africa standardisation of the training syllabus. This would be achieved through inter-agency cooperation among United Nations divisions such as ILO, UNICEF and UNESCO, as well as the governments of the countries involved. Such a proposal for co-operation is already being studied. This of course fits neatly into the technical support function since the DIT would then be prepared to offer packaged programmes of module units of a type and level suited to the particular needs and goals of any institution which asks for assistance. It is certainly one way in which the village polytechnics and the National Youth Service, for example, could contribute in a constructive way to a comprehensive national training structure based on a modular curriculum. It is, moreover, a potential means of making DIT programmes relevant and accessible to informal sector trainees, especially in terms of cost, as we consider below.

Problems, Criticisms and Conclusions

Once again our discussion of problem areas lends itself to certain major headings.

1. Relevance of Formal Programmes: It has been argued that both formal

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13. For a description of the modular approach to industrial training see ILO (14), especially chapters one and two.

technical education and industrial training, while perhaps relevant to certain elements of effective demand for training by individuals and industry, do not address the overall training needs of the economy, nor even those of the majority of firms. This was a recurrent theme in Part 2 of this paper, where we saw that only a fraction of any given age cohort is involved in formal sequences of instruction, yet must find suitable training and employment. Certainly a system such as the DIT at present, which focusses on continuity with the education system, formal entry requirements and predetermined syllabi and testing as the basis of training, is going to appear alien and irrelevant to informal sector needs and to lower-level formal sector requirements for training as well. It appears that formal training may serve a relatively small but highly visible formal demand from the public and private sectors. How can this be changed? The Nairobi NIVTC ran an evening course for informal sector motor vehicle mechanics in 1974, and 27 of the 34 participants obtained a Grade III certificate after four months. The response was seen as evidence of the need for such courses, so expansion here is one possibility. The proposed modular training method may provide an even better answer, since it focusses on actual job skills as the core of a highly specific curriculum. This would presumably lessen the amount of on-the-job adaptation time for trainees, thus reducing the length and cost of training. The function of programmes under the DIT would then be to provide an extensive variety of specific task modules which teach necessary skills in a short time and at low cost. From among these, firms and individuals could choose those which are appropriate to their needs. If a trainee can sign up up for one or a few relevant modules that he needs, rather than having to enroll in a formal fixed-duration programme of comprehensive instruction, then the appeal of DIT programmes for both lower-level and informal training should increase.

When the skill improvement programme is better established by the DIT the response of firms to this training option will be instructive in revealing industry's preferences among a variety of formal training schemes which cover a range of skill levels and entry requirements. However, it is still an open question whether or not institutional training and certification of skills should be applied to the lowest skill levels. On the one hand, standardisation may reduce the exploitation of identifiable labour skills by legally fixing wages to certification. But the surplus of such skills and the pattern of labour mobility may be such that certificates can be ignored or even actively discriminated against in hiring, as is the case for Trade Test certificate holders in the casual labour market of the construction industry. Here employers routinely ignore certificates in hiring and set wages on the basis of their own productivity tests.

Competition for low-skill jobs is so severe that a 'black market' wage, well below the legal minimum, is commonly offered and accepted. Formal programmes for low skill levels may be equally counter-productive in other industries so that further study is called for.

2. Coverage and Use of the Levy: This is an area of concern in several respe One of these is the effect of the training levy on formal sector training and institutions. We referred to this point earlier (see footnote 8) in terms of the influence of the levy on the Mombasa Polytechnic plans. Some of the issues raised there could become equally applicable to other institutions if the Training Act is amended to allow the use of levy funds for facilities outside the NIVTCs. For example, Christian Industrial Training Centres and village polytechnics may be able to offer skill improvement courses which are consistent with the DIT syllabus, yet their ability to compete with the DIT may depend on whether they can claim grants for providing such training to non-sponsored trainees. The same is true for craft training provided by the Harambee institutes and the National Youth Service. With the creation of standardised syllabi, it may be possible for the DIT to incorporate autonomous institutions in some sense as authorised affiliates of NIVTCs. It would certainly be a way to expand skill improvement and perhaps indentured learner courses without having to construct extra training facilities, especially if some of the autonomous institutions are willing to accept sponsored trainees.

The question of sponsorship is itself a major issue. As more and more industries come under the levy, and as there is increasing pressure and financial incentives towards formal training at lower as well as high-level skills, the requirement of employer sponsorship will accelerate the process of the internal integration of supply and demand for skills and training within firms, which is what employer sponsorship represents.[14] This would eventually call into question the usefulness of government manpower planning efforts, and leavers from autonomous training institutions would find themselves completely shut off from hoped for employment opportunities, thus rendering these facilities redundant. This may be the strongest argument for finding a way to incorporate rather than co-op these institutions under the DIT.

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14. I am grateful to Martin Godfrey for helpful discussions which brought this point to my attention and for comments on an earlier draft of this paper.

Another concern is that reliance on employer sponsorship means being dependent upon industry's rather short-term horizon for training needs. A possible consequence is wide fluctuation in demand for trainees, leading to the re-introduction of skill shortages and lagged responses to them, a problem which has been severe in the U.K. (see footnote 11)

Subsidies from the levy funds for approved training of non-sponsored trainees at autonomous institutions may be one way of creating a small buffer stock of skilled labour. Although the pattern of demand for training over time is affected by employer sponsorship, the overall rate of expansion of training by firms may be constrained by the fixity of labour. This refers to the fact that political and economic conditions in Kenya are such that the level of employment in a given firm cannot easily be reduced, and with generally low rates of turnover the specific individuals are fixed as well. Thus the limit on the amount of training that a given group of workers can usefully absorb can be quickly reached.

We mentioned the informal sector in regard to changes in the curricula at the NIVTCs which might improve the relevance of training to this sector's needs. In terms of the levy, we need only note that the informal sector is not levied and it would be difficult and perhaps counter-productive to levy it. Provision of courses for the informal sector would have to be heavily subsidised, if not free to users, and it is likely that government would have to bear the expense as the industries levied cannot be expected to use their funds for purposes outside their own training activities. There is good reason to doubt whether formal programmes should try to reach the informal sector in any significant way at all since, as King has suggested, informal sector modes of skill acquisition may be very efficient already. There certainly appear to be significant labour and thus skill flows back and forth between the formal and informal sectors, both urban and rural. More needs to be known on this subject, especially in regard to the provision of craft skills for the rural sector.

Finally, we should mention that some proposed amendments to the Training Act are already before Parliament which, if accepted, could have a far-reaching impact on levy funds and their use. In brief, the amendments would exempt government from paying levies but would allow it to continue drawing grants and rebates for its trainees under the scheme, and would enlarge the disbursement powers of the Director of the DIT over levy funds. The first of these amendments is the most controversial. The justification offered is that since the government already pays all the operating

costs of the DIT, the polytechnics and the NIVTCs, its contribution to training is disproportionate relative to what private industry pays. While this may be an argument for non-payment of levies, the continued payment of grants for training to government is quite another question, involving, as it would, the net transfer of private levy funds to the public treasury. In effect it adds an element of direct taxation into a levy/rebate scheme.

The proposed change in disbursement powers is intended to allow the use of levy funds to pay for equipment and facilities at the NIVTCs, which currently are paid for solely by government. In light of the preceding arguments about the government's disproportionate contributions to training expenses, there would seem to be a contradictory logic at work here. On the positive side, however, greater discretion in the use of funds could open the way to grants to the autonomous institutions which we considered above, with possibly constructive effects on the structure of training.

3. The Quality of Trainees: The difficulty here begins at the intake level where there have been some recent complaints that Form IV technical school leavers are not properly prepared for apprenticeship. The secondary technical schools have well recognised problems in terms of inadequate equipment and, especially, staff. The staffing problem applies to the NIVTCs as well, which in fact compete with secondary schools to attract scarce local instructors. For the NIVTCs staffing is a serious problem due to "...the long time taken in the process for the recruitment of staff and the relatively unattractive terms offered by Government for qualified instructional staff". (24, p. In addition, the physical capacity of the Nairobi Centre was under severe pressure due to the sudden and unexpected increase in apprenticeship enrollments in 1974. Employers not only react to their own direct experience with the quality of the trainees they are asked to hire, but they are also aware of these staffing problems which cannot help but add to their reluctance to become involved in an apparently insecure programme. A similar problem has been expressed concerning holders of trade test certificates. Many employers particularly in the building industry, ignore these tests completely in hiring, preferring to administer their own job performance or productivity tests as the basis for permanent hiring and wage setting. While a good deal of the difficulty may lie in the relevance of test requirements to actual job requirements and performance standards, there is also room for improvement in the administration of the tests and the granting of certificates. Put bluntly, it is alleged that certificates can be bought, although steps are now being taken by the DIT to ensure against this.

4. The Placement of Apprentices. Trainee quality is but one aspect of the problem of finding employment for potential apprentices. We have touched on some of the causes for employer resistance already. For example, the short-term investment horizon of some firms inhibits participation in a relatively long-term training commitment. Small firms may be inhibited by the opportunity cost of trainee time and the higher wages after training, and certainly firms can supply their needs for skills in other ways than through formal training. The DIT concludes that, "There is no doubt about the fact that personal contact is the only real way of making employers aware of both the existence and the benefits of industrial training." (24, p. 2) This conclusion seemed to be prompted by the results of an intensive, personalised recruitment campaign in 1974 which led to the placement of 464 apprentices, or 63 per cent of the 740 (of 1,011 total) Form IV leavers who registered with the DIT. The programme still does not have its own momentum, however, as shown by the fact that another intensive effort was underway in 1975 to provide a second intake in September, since the response to the normal July intake was very poor. The final placement was only about 30 per cent of Form IV leavers. While an element of publicity may be required to get the training schemes moving on their own, it would also seem that they need to prove themselves in order to overcome doubt and scepticism about whether they will work. The onus would appear to be on the DIT to ensure that the schemes run smoothly. In fairness to the DIT, it should be recognised tnat the Directorate is technically not supposed to be a placement service but rather a registry for training. It is not clear whose responsibility placement is. Th Ministry of Education is most closely connected to the supply of potential trainees, while industry provides the demand for them, but there is no established mechanism for bringing the two together. The DIT has thus far accepted the role by default.

There is a danger that in some sense the schemes may get ahead of the ability of the existing DIT staff to administer them efficiently. On the one hand, the DIT wishes to add industries to the levy and to increase its programmes and enrollment, yet it finds it a strain on facilities to accommodate a large response. Part of the problem is the need to advance on many fronts virtually simultaneously. The 1970-74 Development Plan mentioned producing 1,000 trainees per year from the DIT in the 1970s, while only 140 apprentices actually completed training in 1974. But existing programmes must be placed on a sound footing and evaluated as they go along in order for future programmes to be credible. The Directorate seemed to recognise this problem by delaying progress on the indentured learner scheme and holding back on the expansion of skill improvement courses. A careful

monitoring, not only of the performance of programmes but also of the reasons for difficulties such as employer resistance, and of the long-term prospects for the level of formal training required, would be instructive.

Further Research

Throughout this paper we have either noted or implied a variety of topics worthy of further investigation. Footnotes 7 and 12 refer to work in progress by the author concerning economic aspects of the industrial training levy in Kenya. We will conclude then, with a brief listing of the areas of inquiry in that study.

By looking at firms in industries within the levy system, a comparison can be made between those which train and those which do not. The comparison will center around economic and production characteristics, the planning horizon (if any) for skill and/or training requirements, and the identification of alternatives to formal training for satisfying the demand for skills. A number of labour characteristics must also be examined, especially regarding the existing skill mix and wage structure. It will hopefully be possible to describe when, where and how a demand for skills is translated into a demand for various kinds of training.

The supply response of firms, in terms of whether or not they train, and how, will be related to characteristics similar to those which may determine demand for training. It may be possible to ascertain what the longer-term prospects are for indigenous skill transfer methods within firms to continue to be able to substitute for, or resist the incursion of, the formal DIT schemes. Firms outside the levy will be examined as well, as part of an attempt to understand the nature of decision processes in various types of firms, especially in regard to training. Current government policy will also be examined in order to compare expected and actual impact on firm behaviour.

For the relatively few firms which do train under the levy, data are obtainable which can form the basis for a cost-benefit analysis when combined with various assumptions about the specificity of training (i.e. estimates of turnover rates), the opportunity cost of training time, and the productivity of trainees (these last two are related but not necessarily the same). Results of this analysis may reveal the relative importance of economic factors versus other characteristics in the demand for formal training under the levy. The overall impact of the levy and rebate system will be examined by identifying the net fiscal flows among types of firms as well as between the public and private sectors.

Many hypotheses concerning the causal relations among the parameters of demand and supply for skills and training are taken for granted, but rarely looked at on any more than an ad hoc basis. The current study attempts to look at these relationships in detail. Personal interviews from a sample of firms are used to supplement DIT files. It is hoped that answers can be found not only to the question of what various firms do in regard to training, but why they act as they do.

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