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united nations development programme  
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vocational  
instructor and  
supervisor training  
**NIGERIA**

The International Labour Organisation,  
as participating and executing agency for the  
United Nations Development Programme, has  
prepared this report for the Government of Nigeria.

Geneva  
1968

# PREFACE

In November 1965, the United Nations General Assembly voted to merge two existing development operations – the Expanded Programme of Technical Assistance (established in 1950) and the Special Fund (established in 1959) – into a single entity now known as the United Nations Development Programme. This merger was accomplished in January 1966.

In the broadest sense, the U.N.D.P. assists the developing countries in their efforts to realise the full potential of their human and natural resources. To this end, the U.N.D.P. and the United Nations family of agencies work with governments in carrying out priority pre-investment and technical assistance projects. In the pre-investment sector, U.N.D.P. provides assistance to governments:

- in conducting resource surveys and feasibility studies to determine the economic potential and to plan the productive use of natural resources;
- in establishing or strengthening permanent educational institutions and training programmes designed to provide these countries with the skilled people needed in their development efforts;
- in building up research centres for the development and application of new techniques in industry, agriculture, and a variety of other fields.

These pre-investment projects are carried out in response to specific requests from governments.

Assistance is provided for a well-defined purpose and over a limited period of time. The participating government contributes substantially to the project in the form of national staff, project buildings and facilities and other items that can be met from local resources. The U.N.D.P., in turn, meets the cost of international personnel, project fellowships for senior counterpart staff, and equipment.

The implementation of pre-investment projects is entrusted by the U.N.D.P. to an “executing agency” selected from among the U.N. family of agencies. The executing agency is responsible for the day-to-day supervision and execution of the project’s work plan. Its other responsibilities also include recruitment of international experts, training of national personnel, and procurement of equipment. Upon completion of project operations, the agency submits a final report to the participating government, describing the work carried out, evaluating the results obtained, and setting forth the agency’s recommendations for follow-up action by the government.

In the present instance, the Government of Nigeria, with the help of the International Labour Organisation and the U.N.D.P., established a training institute and a foreman training programme. The final report on this project records the results of their collaborative endeavour.

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In May 1961, the Governing Council of the United Nations Special Fund approved a request from the Nigerian Government for assistance in establishing a national training scheme for vocational instructors and supervisors, to meet the nation's rapidly growing needs for skilled manpower. The Plan of Operation was signed on 14 November 1962. It nominated the International Labour Organisation as executing agency to carry out a four-year project, at a cost of U.S. \$1,075,700 to the Special Fund, with the Nigerian Government contributing the equivalent of \$651,680. When the project had ended, the Special Fund's contribution amounted to U.S. \$993,390 and the Nigerian Government's to U.S. \$651,680. (A breakdown of Special Fund and of government expenditure is given in Appendix B.) These costs to the Special Fund included \$80,000 for foreign equipment and covered 480 man-months of expert services and 180 man-months of fellowships abroad for the experts' Nigerian counterparts.

The Plan of Operation (which is reproduced in Appendix A) defined the objective of the project as being:

“To establish a national training scheme for vocational instructors and foremen, including upgrading courses, in co-operation with the regional governments.”

The project consisted of three main parts:

- (a) A programme of teacher training for existing and future instructors for trade centres and industrial training schemes;
- (b) a programme of trade upgrading, for potential instructor training; and
- (c) a training programme for existing and potential supervisors in government departments and industrial undertakings.

Although the development of the national scheme was one of the first U.N.D.P. projects approved for Nigeria, the I.L.O. had been assisting the country's

training efforts under other programmes for many years. Under E.P.T.A. and its own technical assistance programme, the I.L.O. has long been advising Nigerian authorities on many aspects of employment policy, vocational counselling, industrial relations, rural industries and other areas of manpower. The I.L.O.'s relationship with Nigeria entered a new phase as a result of the first I.L.O. African Regional Conference, held in Lagos, the federal capital, in 1960.

The new Special Fund project of 1962 could therefore be regarded as the continuation of a well-established working arrangement between the I.L.O. and the Nigerian Government. Equally important, the project was a corner-stone of the new vocational training establishment that the federal Government foresaw in its 1962–68 National Development Plan. Before the project, facilities did not exist in Nigeria for training either vocational instructors or supervisors. The expansion of craftsman and supervisory training during the Plan depended almost wholly upon the development of the national scheme established as a result of the project.

The project became operational on 26 March 1963 with the arrival of the first Chief of Project. It terminated at the end of April 1967, when the second Chief of Project departed but the contract of one I.L.O. instructor training expert was extended for another four months until September 1967, to complete an additional instructor training course.

In all, there were 18 I.L.O. experts in various trades at different times and 18 national counterparts.

During the project, three training programmes were developed – two for vocational instructors and one for industrial supervisors. The instructor programmes were established at the Yaba Trade Centre, near Lagos, while the supervisory programme was organised on both a federal and a regional basis,

# INTRODUCTION

with courses being conducted at Ibadan, Enugu and Kaduna<sup>1</sup>. The programmes in operation during the life of the project trained:

- 149 vocational instructors who already had some teaching experience;
- 212 “potential” instructors, whose trade skills were upgraded, and who qualified for advanced level certification as trade instructors;
- 417 supervisors in long courses and 220 in shorter ones.

In addition, 125 potential instructors were in training when the project ended.

All potential instructor graduates obtained the advanced final certificate of the City and Guilds of London Institute, which is the basic qualification for trade instructors in Nigeria. The pass rates of the trainees in the competitive examinations for the certificate were higher than those achieved by United Kingdom or other overseas candidates. The graduates of the potential instructors’ programme who did not continue their studies and become instructors nonetheless benefited from their trade training when they took supervisory or other positions, where their advanced skills were in demand.

Besides establishing a continuing supply of qualified instructors for the expanding Trade Centre network, the project organised a supervisory training programme, which had local support in the three areas where courses were conducted. Industry’s endorsement of the programme was repeatedly demonstrated by the broad range and large number of applicants whom the participating companies sent to the 36 supervisors’ courses.

<sup>1</sup> During most of the project, the Federation of Nigeria consisted of four semi-autonomous regions (northern, western, eastern and mid-western) and the federal territory of Lagos, the capital. Decree No. 34 of 24 May 1966, however, divided the country into 12 separate states.

The project trained a team of national counterparts who were capable of continuing the programmes at high training standards. Essential for the counterparts’ training were the 15 fellowships made available by the U.N.D.P. for study abroad. Thirteen of the counterparts to the I.L.O. team studied at the College of Technical Education in Huddersfield, England, where they spent periods of either 9 or 11 months, obtaining the Technical Teachers’ Certificate of Leeds University. Two counterparts for supervisory training studied at the I.L.O.’s International Centre for Advanced Technical and Vocational Training in Turin, Italy.

Early in the life of the project, the Government had put forward a request for Special Fund assistance in setting up a National Technical Teacher Training College, which started operations in October 1967. A small team of officials from the Special Fund, U.N.E.S.C.O. and the I.L.O. visited Nigeria in December 1964 to help the Government prepare the request for the project, which was approved by the Special Fund in January 1966. It was intended that the new college would begin operations in October 1966 and would absorb the instructor-training component of the I.L.O. project, which was then nearing its completion. U.N.E.S.C.O. was nominated as executing agency.

Owing to unforeseen difficulties, however, the start of the U.N.E.S.C.O. project was delayed. It was therefore agreed that the gap between the two projects should be filled by starting another instructor-training course to assist the integration of the two projects. One of the experts assigned to the I.L.O. project remained at Yaba for six months longer to help with this course. By the middle of 1968, seven U.N.E.S.C.O. experts had been assigned to the project.



# I AN ECONOMY IN TRANSITION

Nigeria already had an embryonic industrial base when it achieved statehood in 1960. But at that time some 70 per cent. of the population was still engaged in agriculture and the country's economic welfare continued to be heavily dependent on the export of primary products, mainly cocoa, ground-nuts and palm kernels and derivative oils. Nigerian exports of agricultural commodities were adversely affected from the mid-1950s by a decline in world prices. The Government therefore determined, in its Six-Year National Development Plan (1962–68) to bring about a reduction of the economy's dependence on international commodity markets and to promote diversification of production and industrialisation.

Like most developing countries, Nigeria had abundant reserves of labour, but lacked skilled manpower at virtually every level. Realising that skilled manpower is indispensable for modern industrialisation, the Government took measures to expand the meagre vocational training facilities then in existence and in the Development Plan allocated increased funds for education, particularly technical education. Nearly \$196 million were to be spent on training and education, representing 10.3 per cent. of total plan expenditure, compared with about \$52 million, or 8 per cent. of the total, in the 1955–61 Plan.

## INDUSTRIAL MANPOWER

This chapter briefly outlines the manpower situation in Nigerian industry on the eve of the project and is followed by a discussion on the existing facilities for technical training and the assessment of future training needs.

As an economy in transition, Nigeria's needs for skilled manpower are most sorely felt in those sectors

where the growth rate is the highest, and the Government's promotional policies aim to sustain this growth. The industrial sectors most affected by the shortage of skilled workers and supervisors during the early 1960s were manufacturing and construction. By 1962 large-scale manufacturing based on import substitution was considered to be one of the two prime movers of the Nigerian economy.

The types and levels of skilled workers needed for Nigerian manufacturing in the early 1960s were known to some degree, and this was the main reason why the Government requested the project for vocational instructor training. The manpower needs of the construction industry – an activity whose requirements and skill levels are even more easily assessed than those of manufacturing – served as the basis for the other half of the project, which was devoted to the building trades (Nigeria's manpower situation in general is given in Appendix E.1).

## MANUFACTURING: THE LABOUR FORCE

Nigeria has three types of manufacturing enterprises: the modern plant based on large-scale production and employing ten or more people; small-scale production units using primarily 'handicraft methods and referred to as the traditional sector; and the non-traditional firms employing less than ten and thus not covered by the census of the modern sector.

In terms of employment, the traditional sector predominates, employing some 500,000, although its output is valued at only \$45 million. Neither the size nor the output of this sector has varied much for more than a decade. Consisting of handicraft pro-

duction in very small shops, these small-scale industries turn out textiles, leather goods, wood products, pottery, cutlery, etc.

The non-traditional sector employs only 100,000 but its output is estimated to account for a third of total manufactures. The modern sector's 706 plants in 1962 provided work for only 75,000 people, although their annual output of \$84 million was nearly twice that of the traditional sector, so that its labour productivity was greater by a factor of nearly 12. Comparable statistics for 1954 make it possible to estimate that the modern sector's labour force had grown by three to four times by 1962. Therefore, of the 800,000 people at work in manufacturing in the early 1960s, some 175,000 were employed in plants where some level of modern industrial skill was necessary. (Appendix E.2 gives a breakdown of employment by manufacturing branch in the modern sector.)

Modern Nigerian industry has opted for capital-intensive techniques, partially because trained workers are few. Faced with the familiar alternative of tackling unemployment on the one hand or attaining output objectives on the other, Nigerian industry has clearly chosen the latter, leaving the bulk of employment opportunities to be supplied by small-scale industries and services. However, despite the growing reliance on capital-intensive techniques, Nigerian factories also need an ever-increasing number of skilled workers, since even the most capital-intensive technology still has a large labour component, given the size of the country's plants and markets, and the resulting scale of production that can be profitably operated. Products based on skilled labour and only recently manufactured in Nigeria include mattresses, ready-made clothing, furniture, rolled steel, ships, petroleum products and milled flour. Since most of these new plants will eventually hire trained Nigerians to replace skilled expatriate labour, this part of the manufacturing sector is a potential source of large external savings for the entire economy and explains why one-half of expert man-months were devoted to trade skills essential for the sector.

By far the most important sector of industry

during the 1950s was building and civil engineering, both of which have made a major contribution to Nigeria's development since the early post-war days. In terms of its contribution to G.D.P., Nigeria's construction industry is several times more important than manufacturing and small industries. In 1956/57, for instance, construction and civil engineering accounted for 11 per cent. of G.D.P. while manufactures and craft industries contributed only 1¼ per cent.

This construction boom of the 1950s led to a rapid expansion in the numbers and capacity of building and civil engineering contractors, particularly since the Governments after 1950 relied less on hiring their own labour, turning instead to contractors to carry out entire projects. While encouraging the growth of contractors, the Government also made facilities available for the training of skilled construction manpower.

Thus, by 1957, the total number of building trades trainees being prepared for the construction industry included over 300 at the Nigerian College of Arts, Science and Technology, 600 at technical institutes and nearly 1,500 at vocational centres. Another 30 students were studying civil engineering abroad. In view of the rapid growth of construction and the number of contractors qualified to carry out the work, the thousand or so skilled building tradesmen leaving trained programmes annually was far short of the numbers required if the cost of construction was to decline and its quality improve. Most construction labour had at this time received no formal training, except what could be imparted on the site.

According to 1959 employment figures, construction accounted for the largest share of industrial labour, providing work for 22.4 per cent. or 96,849 workers of the 433,366 then engaged in industrial activity. Considering that the vast majority of construction workers must possess some skills, clearly the thousand or so qualified craftsmen entering the construction labour pool annually were insufficient. For this reason, the other half of the project's trade experts were qualified vocational instructors for the building trades.



# II

# TRAINING REQUIREMENTS AND FACILITIES

“Today the inflow of skilled manpower into Nigeria is even more urgently required than the inflow of capital.” With these words the 1962–68 Plan document identified the major obstacle to achieving the desired programme of modern industrialisation. The need was clearly spelled out: “There is a considerable deficiency at present of high and intermediate level manpower such as entrepreneurs, managers, supervisors, foremen and technologists.”

The deficiency had already been recognised in earlier surveys of the country's economy. For instance, a World Bank Mission in 1955 drew attention to “the lack of technical and managerial skills necessary to carry out an accelerated programme of economic development”. It declared: “The most immediate need is to overcome the shortage of skills ... Nigerians must be trained ... It is our belief that this is the overriding priority need for the next few years ... In every branch of government, essential activity related to Nigeria's economic progress is held up for lack of qualified personnel.”

The National Economic Council, which was responsible for formulating the 1962–68 Plan, noted: “The development of Nigeria since the war, both in the private and public spheres, has led to an ever-increasing demand for persons with management, administrative and professional capabilities. At the technical and supervisory levels, the shortage of trained personnel is also a major problem.” It warned of the danger that the lack of skilled personnel for industry and commerce might retard future development.

The authoritative Ashby Commission report on higher education in Nigeria (1960) stated: “We are in no doubt that a great expansion of the facilities for technical education at all levels will be required

if Nigeria is to produce from among her own people the technically trained manpower needed to enable her to take her rightful place as an independent nation in the modern world. Indeed, we are convinced that this is one of her most urgent educational needs.”

## EXISTING FACILITIES FOR TECHNICAL EDUCATION

The first tentative steps towards introducing technical education were taken in the 1945 Ten-Year Plan for development and welfare. Proposals were made for establishing (a) Handicraft Centres, (b) Technical Institutes and (c) Trade Centres, and a grant of just over \$1,120,000 was provided for the first five years of the programme.

- (a) The Handicraft Centres, set up mainly in the rural areas, were primarily intended to overcome existing prejudices against manual work, besides developing in every youth a respect for manual skills and technical achievement as well as a critical sense of quality – at the time considered to be a prerequisite for raising the very low standards of craftsmanship. Scattered throughout the country, the centres trained thousands of primary school children in wood- and metal-working and to a more limited extent in the traditional crafts such as weaving, leatherwork and smithery. The 1955 World Bank report commented that the centres were “most beneficial” and recommended that the programme be expanded, especially in the north.
- (b) The Technical Institutes (now called Technical Colleges or Colleges of Technology) were organised to provide more advanced training.

They eventually developed two separate full-time programmes besides short-term and evening classes for industrial workers. The programme for candidates for the City and Guilds Ordinary Certificate (now called Ordinary Technician Diploma), which is equivalent in standard to the British Ordinary National Diploma, consists of two years' post-secondary course work and one year of on-the-job training. Some of the institutes initiated junior technical courses when insufficient secondary school candidates appeared for the regular technician courses. This five-year technical course, which has been discontinued by some institutions, leads to the West African School Certificate with options in woodwork, metalwork, technical drawing or commerce. The Technical Institute in the capital of each of the three regions – North, East, and West – served as the site of the project's supervisory training component.

The first Technical Institute was opened in Yaba, on the outskirts of Lagos, in 1947. By 1960 there were four Technical Institutes in existence, at Kaduna (North), Enugu (East) and Ibadan (West), besides the one at Yaba. Their total enrolment was about 2,000 students; all four were to expand by varying amounts during the 1960s.

The Yaba Institute was the largest and most comprehensive, with a capacity of some 1,400 students. The World Bank report praised "the high degree of efficiency and effectiveness" of the Yaba programmes and commended the way in which the Technical Institute had established close practical links with neighbouring industry.

- (c) One of the objectives of the project described in this report was to provide instructors for Trade Centres. The ten Trade Centres established and financed by the Government were planned as secondary vocational schools. They prepare highly-skilled craftsmen, originally intended to act as a spearhead in the drive to raise the general standard in industry. Candidates for the Centres are selected from primary school graduates, must pass an entrance examination and be between 15 and 17 years old. The three-year residential course is followed by two years of apprenticeship in a plant. Once this five-year programme has been successfully completed, the candidate sits for the London City and Guilds intermediate (craft) certificate examination. Con-

trary to the practice at other Centres, however, trainees at the Yaba Centre were not trained to enter for this examination.

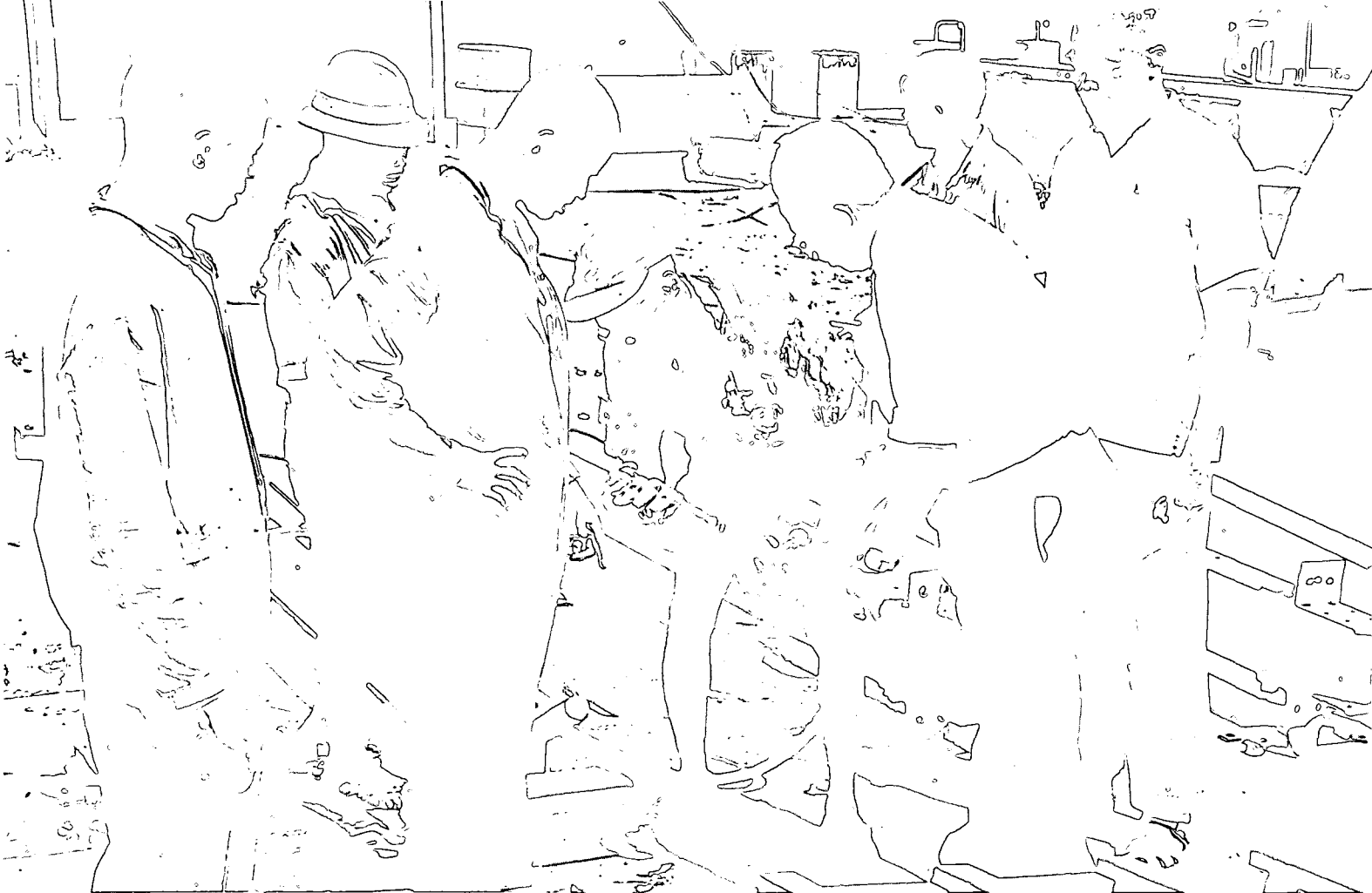
Following the creation of the first Centre at Yaba in 1947, nine others were set up at strategic locations throughout the country. By May 1961, about 1,900 trainees were enrolled in the ten Centres, which included 658 at Yaba, 182 in the East, 679 in the North and 398 in the West. Although the ten had a total staff of only 120, the Government planned to treble their intake of students by 1965. (See Appendix H for more details.)

The Centres' programmes provide for craft training in 15 different trades. These include fitter/machinists, blacksmiths and welders, sheet-metal workers, plumbers, instrument mechanics, electricians, auto/diesel mechanics, cabinet makers, carpenters and joiners, wood machinists, motor body builders, bricklayer/masons, painters and decorators. Training for shipwrights is provided in the West and for leatherworkers in the North. Training lasts from two-and-a-half to five years according to the trade.

Recurrent problems that faced Nigeria's vocational schools in the 1950s were recruitment and staffing. Despite the assumed national demand for skilled craftsmen, many Nigerian youths were deterred from enrolling in Trade Centres by the limited jobs actually available. Instead, they preferred to seek training with private firms and public corporations, which provided more assurance of subsequent employment. Moreover, many employers had reservations about the quality of Centre-trained students, since the Centres did not reflect actual industrial conditions.

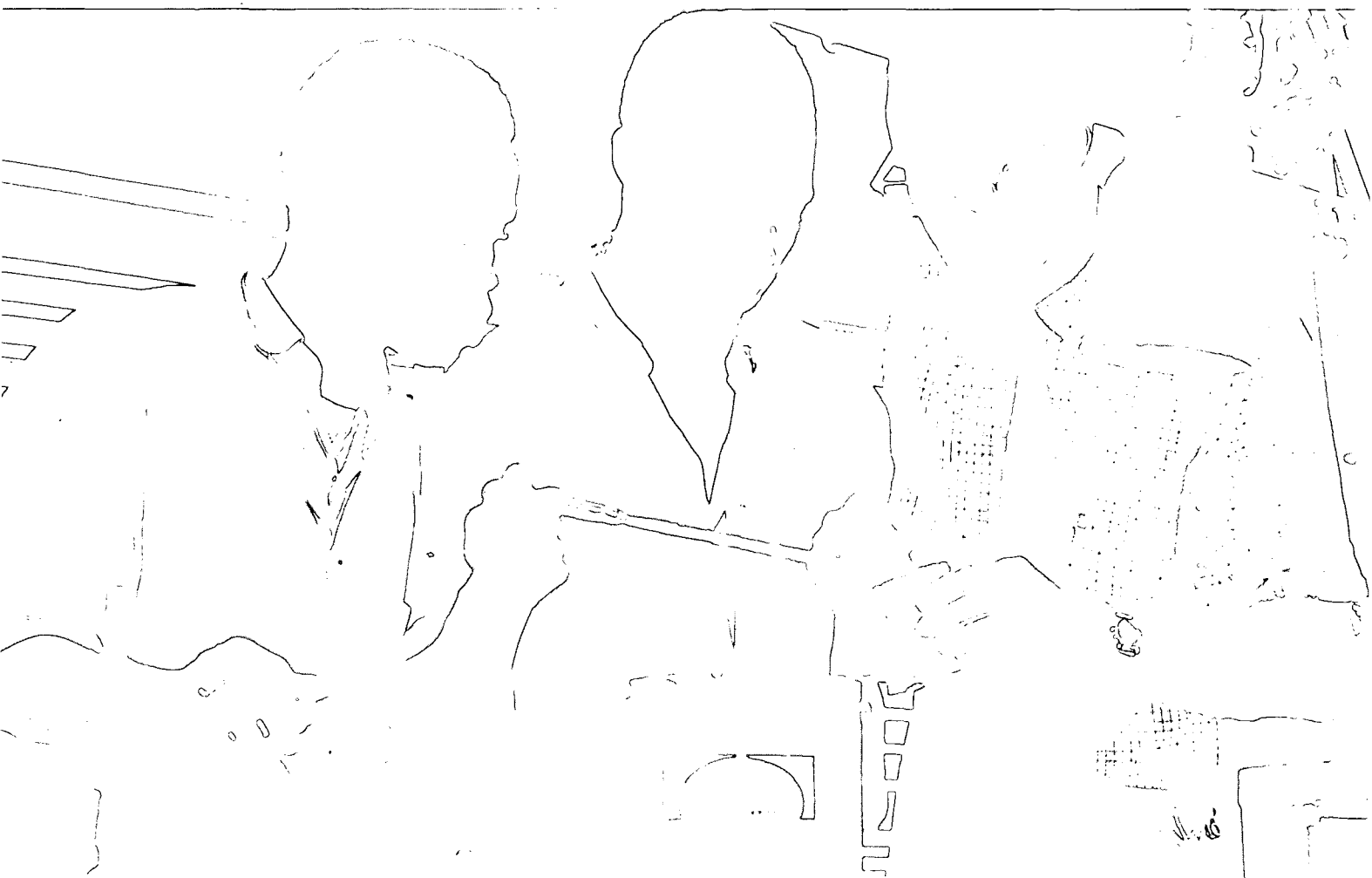
In spite of these shortcomings, the Trade Centres undoubtedly played an important part in developing craftsman training in Nigeria. The Ashby Commission was favourably impressed by the quality of the work being done in the Trade Centres.

Until the Trade Centres were established, the onus for vocational training rested entirely on the public corporations and larger private firms, many of which operated on-the-job training schemes for their own staffs. The Nigerian Railway Corporation, the Ports Authority, and the Posts and Telegraphs division of the Ministry of Communications and Aviation all train their own craftsmen. The United Africa Company, for example, provides apprentice training at several centres in a wide range of subjects, ranging from mechanical and marine engineering to the servicing of domestic electrical appliances, besides offering courses in commercial subjects and accountancy. In spite of these training facilities, the



△ G.U. Arafiena, an instructor in sheetmetal work at the Nigerian Port Authority's Dockyards in Lagos, was trained at Yaba.

▽ The I.L.O. expert for painting and decorating helps trainee instructors prepare for an exercise.



demand for trained personnel in the early 1960s was much greater than the private or public institutions could satisfy. It was clear that in order to expand these facilities, many more vocational instructors would have to be trained, and therefore half of the activities of the project under discussion were devoted to instructor training.

## THE CITY AND GUILDS OF LONDON INSTITUTE

In both general education and technical training, the Nigerian systems are based upon United Kingdom standards and syllabi. The intermediate certificates of the City and Guilds of London Institute are crucial in the qualification of apprentices and are required for the students who graduate from the Trade Centres. The body responsible for administering and organising the City and Guilds examinations in Nigeria is the West African Examinations Council for Technical Education. It was set up in 1953 and has its headquarters in Lagos.

City and Guilds certificates are based on well-established and internationally recognised standards, and are prized highly by most Nigerians. The City and Guilds of London Institute was founded in 1878 as an association for the advancement and application of "all such branches of science and the fine arts as benefit or are of use to... productive and technical industries especially, and to commerce and industry generally." It holds examinations for operatives, craftsmen, and technicians<sup>1</sup>.

Although primarily intended for British youths whose employers allow them day-release facilities, the City and Guilds Institute also operates an active overseas section. It has accepted overseas candidates for examinations since 1887, and by 1950, had accepted about 7,500 applicants from 30 different countries. By 1965, the figure was nearly 30,000 candidates from over 50 countries.

Its policy, especially in recent years, has been to seek to adapt its syllabi and examinations to fit the needs of developing countries. The Institute recog-

nised that the existing provisions which were appropriate for the needs of the United Kingdom would not necessarily satisfy all the future needs of developing countries overseas and set up a special overseas advisory committee in 1954.

While certain technical subjects, such as those in the engineering field, lend themselves to international standardisation, many trades, such as building, are determined by local materials, methods and requirements, which can be very different from those in the United Kingdom. To alleviate problems arising from such differences, education authorities and teachers in developing countries are encouraged to inform the Institute of their specialised requirements and to suggest ways in which the content of syllabi can be modified to meet local needs while maintaining the over-all standard of the examinations. In Nigeria, for example, special courses in plumbing and interior decoration for tropical conditions have been arranged, and a specialised course for diesel engine fitters has been devised for the Nigerian Railway Corporation. In the view of some observers this process has not been carried far enough in Nigeria.

The Institute recognises that developing countries will eventually establish their own independent examination boards. It has co-operated closely with the Nigerian Technical and Commercial Examination Committee of the West African Examinations Council. City and Guilds examiners have visited Nigeria to train examiners on the spot, and many Nigerians have been to London to study at first hand the methods of preparing syllabi and examinations adopted by the Institute.

Although this development is a long-term process, it is one which the Government has embarked upon with full realisation of the potential obstacles involved and the ultimate benefits for the nation's welfare. The fact that the project was the first organised scheme in Nigeria to provide training for the final advanced level certificate of the City and Guilds is certainly the first step in this process.

## DETERMINING TRAINING REQUIREMENTS

At Independence, the Nigerian Government inherited a set of comprehensive proposals for the tailoring of its higher educational system. These were embodied in the report of the Ashby Commission "Investment in Education" (1960) concerned with

<sup>1</sup> These are defined by the Institute as follows: an **operative** is a semi-skilled person who requires a high degree of skill in a specific field coupled with the ability to absorb retraining as new techniques require changes in working methods; the **craftsman** is highly skilled over a wide range of operations and has knowledge, training, and experience related to a wide range of techniques and materials, coupled with the ability and knowledge to select the right tool for the job; the **technician** requires a higher level of scientific and technical knowledge than the craftsman and works under the general supervision and control of a technologist.

Nigeria's needs in the field of post-school certificate and higher education over the next 20 years. The Ashby report was supplemented by a special report on "High-level Manpower for Nigeria's Future" by Professor F.W. Harbison of Princeton University, U.S.A. His estimates were supplemented by a survey conducted by two manpower specialists from the United Kingdom, Messrs. Cottier and Caunce, who concentrated on the needs for the intermediate category (i.e. technical and commercial education below professional level).

The combined results of the three reports later served as a basis for the projections of the National Manpower Board, created on the recommendation of the Ashby report, with the objective of planning manpower developments and promoting training schemes. Appendices G.1 and G.2 summarise Nigeria's estimated requirements for trained people by economic and educational sector.

In view of the broad target set in 1963 for an output of 50,000 craftsmen and technicians by 1970, the first essential step was to build up a nucleus of technical instructors. This was the objective of the Nigerian Government's request to the U.N. Special Fund. At this time, there were no facilities in Nigeria for the training of technical instructors, and the great majority of the existing instructors (estimated at about 85 per cent.) at the Trade Centres were expatriates. The scheme, it was envisaged, would enable the Centres to be staffed entirely by Nigerian instructors who would gradually replace the expatriates as their contracts expired.

At this time (early 1961) there was a total of

3,600 trainees taking courses in the Trade Centres, while another 2,700 were being trained in apprenticeship schemes. This total represented less than 1 per cent. of the 650,000 people then at work in industry, and a tiny fraction of the number of potential craftsmen needed if the planned rate of economic growth was to be attained.

The Government, in its request to the Special Fund, estimated that it would be necessary to train about 300 Nigerians as craft instructors during the next five years. The period of training would be five years in the North, but could be reduced to three years in other parts of the country, where the level of primary education was higher. After this backlog had been dealt with, the Government estimated that about 30 instructors per year would be required.

The other half of the project concerned supervisors, and here no precise information about the existing numbers or the potential needs was available. A broad figure of 25,000 as the required total supervisory force was set. This was based on calculations derived from the Economic Survey which had classified 14,000 workers as foremen and another 7,500 as "technical and supervisory employees", leaving a gap of about 4,000. The fact that many of the existing supervisors were expatriates and that the rate of industrialisation was expected to grow rapidly rendered this estimate somewhat too conservative. In the end, a target figure was set to train 15,000 supervisors at various levels and thereafter to provide for an annual output of about 1,000 supervisors to allow for normal turnover and expansion.



# III

# PLANNING AND PREPARING THE PROJECT

## THE FIRST STAGES

Even before Independence, the Nigerian Government had planned to call on the aid of United Nations agencies in its efforts to improve the skill level of its manpower. Discussions on how the I.L.O. could aid Nigeria's vocational training system had already begun in 1959. It was in that year that the Nigerian Government requested the aid of the United Nations Special Fund in establishing training programmes for vocational instructors and supervisors.

Three I.L.O. vocational training advisers visited Nigeria between November 1959 and February 1962, to assist in the preparation of the Government's request to the Special Fund and in the implementation of the project. As a result of their missions, and after thorough consultation with the Nigerian authorities, the definitive Plan of Operation was drawn up. The main change that emerged was the decision to concentrate the central instructor training unit at Yaba, near Lagos (instead of at Kaduna in the North, as originally proposed), and to locate the supervisory training unit at Kaduna. It was agreed during the discussions to concentrate on the building and engineering trades, and to include a substantial element of pedagogical instruction and related workshop subjects. It was suggested that the project should train instructors to qualify for the City and Guilds Final Certificate, which would serve as the essential technical qualification for instructors.

The reason for including trade upgrading or potential instructor training as an integral part of the project was the realisation that very few Nigerian trainees possessed the Final or Advanced City and Guilds Certificate, which the Ministry of Education

had decided should be the essential qualification for trade instructors. The Trade Centres were limited to producing students with the intermediate (or ordinary) craft standard; few opportunities existed for them to proceed to more advanced levels.

Instructor and potential instructor training was to be based at the Yaba Trade Centre, and supervisory training would be concentrated at Kaduna. Both schemes would operate on a federal basis. Qualified Nigerian counterparts for the I.L.O. experts would be appointed within six months and would be trained to take over after the departure of the I.L.O. team. Fifteen fellowships would be awarded to enable the counterparts to study overseas.

In order to accommodate the instructor trainees, the numbers in training at the Yaba Trade Centre would be reduced. Wherever possible, the Centre's equipment would be used for the project, but the U.N.D.P. would provide \$80,000 for buying any necessary additional equipment and visual aids. The list of equipment supplied by the U.N.D.P. is given in Appendix F.

## THE COURSE OF THE PROJECT

The instructor training component of the project became operational in March 1963, when the first Chief of Project took up his post. His terms of reference were to "advise and assist" the Nigerian authorities in establishing and running the national training scheme. He was expected to advise on all administrative matters, prepare training programmes, train counterpart staff, co-ordinate the Yaba and Kaduna Centres, look after the I.L.O. experts, and "provide the leadership necessary to maintain harmonious working relationships within the team".



▲ Instructor trainees coming from their examination with high hopes.

▼ The bricklaying and masonry workshop at the Yaba Trade Centre is typical of the spacious facilities for practical training.



Before arriving in his post, the Chief of Project with the assistance of another expert, prepared lists of tools and equipment to be purchased out of the U.N.D.P. allocation. He discussed procedures with the federal and regional government officials and with the examining bodies in Nigeria and London, which enabled him to draw up the outlines of the training programme. The first I.L.O. trade expert, for carpentry, arrived in August 1963. By January 1964, the Yaba I.L.O. team was complete, except for the second instructor training expert who arrived in October 1964.

During the whole period, apart from the two Chiefs of Project and the Deputy Chief of Project, there were 15 I.L.O. experts, three from Australia, six from the United Kingdom, two from the U.S.A., one from Sweden, one from the Netherlands, one from Yugoslavia, and one from Canada. All experts were highly qualified in their own trades. Several had had experience of other parts of Africa, which meant that acclimatisation presented few problems. (Details of expert services are given in Appendix D.)

In addition to the two successive Chiefs of Project and the Deputy Chief, project personnel fell into two categories: experts, who included two for instructor training and three for supervisor training; and expert instructors, who were specialists for either engineering trades or building trades. Among the ten expert instructors assigned to the project, five were concerned with the engineering trades, which included motor vehicle mechanics, mechanical engineering, welding, sheetmetal work, and the electrical trades. The five others were concerned with carpentry and joinery, cabinet making and wood machining, brickwork, plumbing, and painting and decorating. Thus a total of 11 trades were represented, some of which were taught by two experts in succession, while three experts each taught two trades.

It took rather longer to select and appoint the Nigerian counterpart staff. A government liaison officer, who acted as counterpart to the Deputy Chief of Project, was appointed in December 1963. The first six instructors were selected in 1964, after they had passed through the first teacher training course. On completion of their fellowships abroad, five took up duties as counterparts in teacher training, cabinet making, carpentry and joinery, mechanical

engineering and woodwork. The sixth counterpart, a motor vehicle technician, preferred to remain in regional service. He was replaced by a teacher trainee from the third instructor training course. Four more trade counterparts were selected from the second teacher training course, and the two final counterparts who had graduated in earlier courses were appointed in October 1965 (electrical trades) and February 1966 (sheetmetal working trades). Four counterparts were appointed to the supervisory training units. (A list of counterparts is given in Appendix C.)

In addition to the preparation of training courses, a number of administrative and practical problems had to be resolved in the early days of the project. These included the installation of equipment, which arrived progressively, fitting out of the Centre and making arrangements for storage, staff housing and transport. It was agreed with the principal of the Trade Centre that workshops should be shared for five trades and separate workshops provided for six others. Although the Centre was initially intended to have its own laboratory, it was decided instead to teach basic science in the class-room of the Trade Centre and more advanced science at the neighbouring College of Technology, which had superior facilities. The facilities of the College were also used for the motor vehicle and electrical technicians' courses.

At the outset, some delays were occasioned by the initial difficulties in securing a sufficient number of recruits with suitable experience and qualifications for the instructor training course. The Chief of Project launched a publicity drive, backed up with personal visits, to industries and firms, to persuade them of the potential advantages of central training at Yaba. As a result, 24 trainees were recruited from all over Nigeria for the first course. Later the task of recruitment and enrolment devolved on the government liaison officer, appointed in December 1963.

Much the same procedure was followed in recruiting trainees for the supervisory unit at Kaduna. A personal approach was made to leading employers and government departments with an invitation to them to nominate members of their supervisory staffs to attend the course at Kaduna. The first six-week supervisory course opened on 25 February 1964 with 13 students.

# IV THE YABA CENTRE

The instructor training programme at the Yaba Centre was designed to serve two groups:

1. Vocational instructors – these were existing instructors in Trade Centres and elsewhere, who had not received any formal training, although many had been teaching for several years. The programme included the theory and principles of teaching, and a certain amount of practice, under the supervision of the I.L.O. trade experts. The students were the potential instructors (see 2).

During the project, five courses were held, with 157 participants, of whom 149 graduated. The national counterparts to the I.L.O. experts were selected from students who attended these courses.

2. Skill upgrading – designed to train craftsmen to the advanced level of the City and Guilds of London Institute, so that they could then enter teacher training. It was realised that all who obtained this technical qualification would not be suitable for teaching duties, and that entry to teacher training must be by further selection. The number recruited for trade upgrading was, therefore, three to four times greater than the number required for teacher training. Those who obtained the technical qualification but were not selected for teacher training would be welcomed back into industry, where the additional qualification would increase their chance of promotion to supervisor status.

Three courses were held, with 337 participants. As might be expected, the level of incoming trainees for both types of courses constantly improved as selection criteria were applied more stringently and the programmes' reputation spread, thereby raising the number of candidates competing for the limited number of places available and giving a wider choice for selection. As the I.L.O. experts became more familiar with existing conditions and the trainees'

needs, course content underwent a corresponding shift in emphasis, usually from the theoretical to the practical.

## THE CENTRE

The Yaba Trade Centre lies on the outskirts of Lagos, the federal capital, in the vicinity of the city's industrially developed area. The Centre consists of a two-storey office block, a canteen, and classrooms, which together occupy a plot of land about three-quarters of a mile square. The Centre's workshops are clustered around an adjoining sports field and complete the training complex.

The Yaba Centre was chosen to house the project because it is the most advanced training centre of its kind in the country, being reasonably well-equipped and close to a variety of industrial plants. Moreover, for the project's purposes it was ideal in that the Centre's regular classes provided an abundant supply of pupils for the trainee instructors' practice teaching.

## THE TRAINEES

Whether they had enrolled in the instructors' or the potential instructors' course, most of the students were housed in the adjoining College of Technology, unless they lived in the Lagos area. They all worked extremely hard and had very little leisure time. Class-room hours, towards the end of the project, were arranged to fit in with those of the Trade Centre and lasted from 7.30 to 14.00, plus two hours on

Saturday morning. In addition, the students spent a great deal of time on homework.

A “document” or certificate from the Centre is a highly prized possession, and is regarded as the passport to a better job. Hence, it is not surprising that these young men should have left their homes and jobs to seek the qualification of the advanced City and Guilds examination, or that the applications for the courses should have far outstripped the numbers that could be admitted.

All of the I.L.O. experts spoke highly of the students’ enthusiasm and interest in the work. Some of the instructor trainees, particularly in the later courses, were of a very high calibre and had already had considerable industrial experience. Most were in their late twenties and had earned salaries ranging from as little as N£174 p.a. for an electrical installation trainee to the N£800–N£900 level.

The average age of the potential instructor trainees was somewhat lower, and most of them had come straight from the Trade Centre, without any practical industrial experience.

In taking the courses, the trainees were not only motivated by the desire to improve their own prospects: many were aware of the need to help their country by closing the gap in skilled manpower. For example, the instructor trainee who was appointed as a counterpart for sheetmetal work at Yaba admitted that he could earn more in industry than as a vocational instructor, where his salary would be in the N£684–N£700 range, but felt that if he stayed in the teaching field he could do more to help the country.

## INSTRUCTOR TRAINING

During the project, five instructor-training courses were conducted with the assistance of the I.L.O. experts. Courses were six, seven or eight months in length, depending upon the starting date of the course in relation to the starting dates of the Trade Centres for which the instructors were being trained. Each succeeding course saw the number of trainees rise; most of them had come from the potential instructors’ courses, also run at Yaba, which will be described later on. Similarly, a marked change in the content of the courses was noticeable as practical instruction became more emphasised than theoretical instruction. This change was in part due to the improved qualifications of the trainees in the

later courses, whose real needs were more in the area of advanced applied technical knowledge than in its theoretical content.

The improvement in standards also arose from the increasing competence of the Nigerian counterparts, who assumed more direct responsibilities in the area of teaching. Thus, from the start of the third potential instructors’ course in July 1966, the counterparts in cabinet making, carpentry and joinery, mechanical engineering and brickwork, assumed direct control of their classes, before the departure of the experts. The teacher training counterpart replaced the first expert who left in May 1966, and, with the second expert, jointly conducted the fourth teacher training course. Details of the five courses are given in Appendix I. Appendix L gives the time-table for the fourth course.

## THE FIRST COURSE: GETTING STARTED

Opened at the Yaba Training Centre on 28 October 1963, the first course lasted until 24 April 1964, and was attended by 24 trainees. They came from varied backgrounds and all the different regions: four from the East, four from the North, three from the West, five from the Mid-West and eight from federal territory (Lagos). All were nominated by their employing authorities; individual selection on the lines adopted for later courses was not possible in the initial courses. Most of the students were already teaching at Trade Centres or Technical Institutes, but few had any formal teacher training. Five had had some practical experience working in the United Kingdom. The 24 trainees represented the ten trades most in demand by industry: fitter mechanic (3), electrical (4), motor mechanic (3), sheetmetal (2), carpentry (2), cabinet making (4), bricklaying (3), painting, motor body building, and foundry (1 each).

Some of the trainees found it difficult to follow the course, but those with some work experience had no trouble at all. The first course was largely devoted to the principles of teaching because not all the necessary equipment was available and because of the trainees’ differing standards. Only in the last weeks was it possible to provide the students with practical teaching experience, when the potential instructors (whose course had started four months after that of the instructors, in February 1964) were used as trainees, under the supervision of the I.L.O. experts.

The first I.L.O. expert in teaching techniques arrived in Lagos early in October 1963. The purpose of the programme he was to help develop was training in methods and techniques that would enable the craftsman to organise and present instruction to his students in an orderly and sequential manner. This would enable them to grow in knowledge and skill in their respective trades as rapidly as possible.

The need to improve the trainees' standard of English became apparent early in the project and arrangements were made for two Trade Centre teachers to teach basic science and English part time. Thereafter, all potential and trainee instructors received two hours of weekly instruction in English while all potential instructors received two hours weekly of basic science training.

## **THE SECOND COURSE: A HIGHER LEVEL INTAKE**

It was possible to be more selective for the second course, which began in October 1964, and to include a greater element of practical, as distinct from theoretical, instruction. Of the 34 trainees who originally enrolled for the course, nine had been already nominated as instructors and 25 were selected from the 54 who had sat for their final City and Guilds Certificate in May 1964. Several of these were already employed as assistant instructors. Seven of the trainees selected were not found to be suitable for instructor training and were sent back to the potential instructors' course. The total participation in the second course was thus 27, of whom nine were direct entries and 18 came from the first potential instructors' course.

Although this course followed the same general pattern as the first one, it was lengthened to eight months. The second I.L.O. expert in teacher training arrived on 3 October 1964, in time for the opening of the course, and introduced a greater emphasis on practical subjects.

In the syllabus that he drew up, the first three months were devoted to subjects such as trade analysis, discussion of educational aims and workshop organisation, and instruction in the use of visual aids and the black-board. For the second three months, the trainees concentrated on planning course programmes and lessons, and learned methods of testing progress and attainment. The third part, which took the final two months, was largely devoted to supervised workshop teaching in the Trade Centre.

The final sessions evaluated the course and the students' progress.

Students were placed in groups of ten, which permitted individual instruction. One day each week was devoted to a session with the entire group, thus ensuring uniformity in standards and progress. Emphasis was placed on "learning by doing" in an actual workshop situation, which provided an opportunity to apply in practice the principles learned in the class-room. Known as the "special methods" programme, this took up about four hours each week. The trainees taught in Trade Centre workshops under the supervision of the I.L.O. expert or his counterpart.

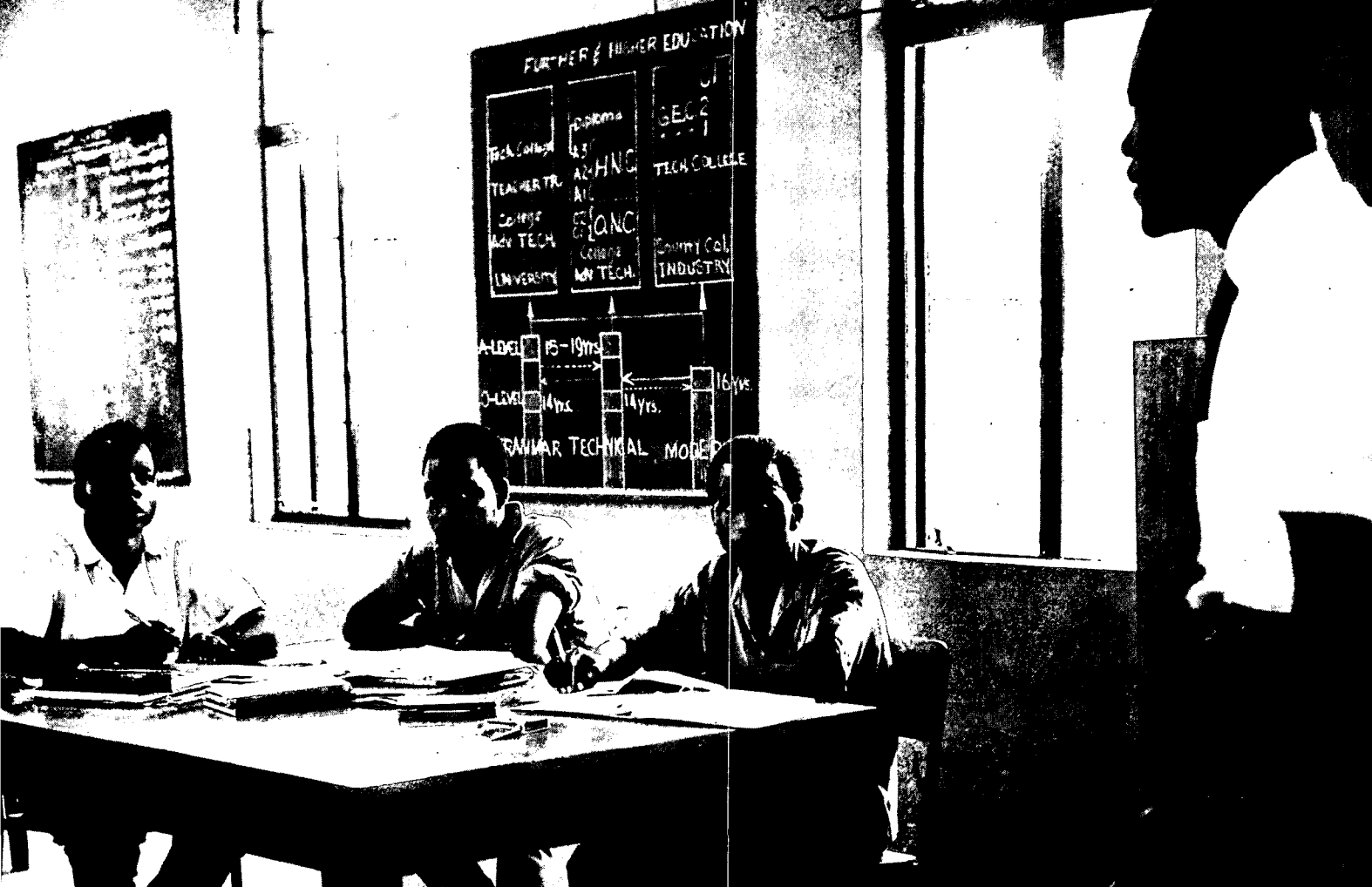
A number of problems arose in connection with the practical teaching programme. The "special methods" gave rise to some misunderstanding, and a lack of liaison between the instructor trainees and the personnel of the Trade Centre shops resulted. Shortages of training materials in the Centre workshops made it difficult to follow the prepared syllabi, and few of the Trade Centre instructors were able to assist in assessing the practice lessons.

Despite these problems, the second course – which lasted until May 1965 – was deemed by the project organisers to be a distinct improvement on the first. This was attributed to the longer period of training and to the greater emphasis on practical work. Graduates of the second and subsequent courses were presented with technical teaching certificates at official ceremonies.

## **THE THIRD COURSE: A NEW CHIEF OF PROJECT**

By the time the third course opened on 3 August 1965, a new Chief of Project had been appointed. Between the end of the second course in May and the opening of the third course in August, arrangements for the careful selection of suitable candidates had been made. Courses were advertised, applications were received and selection interviews were held with the co-operation of the Aptitude Testing Unit of the West African Examination Council.

Test results were not used as exclusive criteria for selection but were combined with other factors such as the educational background of the applicants, their trade qualifications and experience, and a personal interview. It was also necessary to distribute the number of available places equitably among the regions. The need for screening and stringent testing, in contrast to the search for sufficient candidates for



▲ The I.L.O. expert for teaching techniques lectures to trainee instructors.

▼ The I.L.O. expert for plumbing introduces instructor trainees to the advantages of the pipe bending jig.



the first course, reflected the extent to which the Yaba Centre was becoming known and accepted within Nigeria.

Certain changes were introduced in the programme for the third course in the light of the experience gained in the earlier courses. It was agreed that even more emphasis should be laid on the practical aspects of teacher training, not only making fuller use of visual aids but encouraging the students to make these for themselves. Above all, practice in using the black-board was emphasised.

The new programme provided for eight hours per week to be spent in the workshops during the first two terms. Part of this time was devoted to "special methods" and part to practice teaching of very small groups of potential instructors under the close supervision of the experts. Instructor trainees were allowed to undertake their first practice teaching at the advanced (potential instructors) level, on the understanding that lessons would be selected from the less complicated parts of the syllabus and that the classes would be split into small groups. This experiment was a success and undoubtedly helped the trainee instructors to overcome their initial diffidence and acquire increased confidence in the class-room.

Progress was also helped by a number of physical improvements in the Centre. The instructor-training block was completely redecorated and new lighting provided; vinyl tiles were laid over rough concrete floors; a separate air-conditioned room was provided for film and other projection equipment, and another equipped with work benches and tool kits for the construction of visual aids. Sixteen practice black-boards were set up and a separate office with partitions to house separate groups was constructed in the training block. These material improvements added considerably to the smooth running of the project and the amenities for its staff.

The results of the third course were interpreted by the Chief of Project to have justified the new approach and to have produced the best batch of instructors since the project began. Out of 34 course participants, 33 qualified and duly received their technical teaching certificates at the graduation ceremony.

## **THE FOURTH COURSE: TRADE EXPERIENCE EMPHASISED**

Conducted from 12 April to 9 December 1966, the fourth course was accompanied by a shortening

of the length of the training period, because by this time the programmes were running smoothly and the Centre was operating efficiently.

The list of applicants was constantly lengthening and candidates were subject to even more careful scrutiny and selection than in the third course, with aptitude tests spread over three days.

For example, to select trainees for the fourth course, some 400 application forms were sent out, 230 applications were received and 86 were called for interview. Of the 86, 33 came from the East, ten from the West, 16 from the Mid-West, 17 from the North and ten from the federal territory (Lagos). A regional balance was maintained in the final selection.

In all, 32 trainee instructors were enrolled and all qualified and received their certificates. Over half chose the electrical, mechanical engineering, and motor technician courses.

In earlier courses, working experience in the trade had been regarded as a desirable factor (in accordance with the I.L.O. Recommendation on vocational training of 1962), but it had not been possible to insist on such experience as a qualification for entry.

In selecting trainees for the fourth course, it was possible to make trade experience an essential qualification and insist that an entrant should have worked for at least one year after apprenticeship. In fact, many of the students had industrial experience over a longer period.

Apart from outside sources of recruitment, the potential instructors' courses had already turned out over 100 men who possessed the required technical qualifications and were eligible for full instructor training. The result, according to the I.L.O. experts, was the selection of what proved to be the best group since the project started.

The amount of time spent on lectures and class-room discussion in the fourth course was further reduced in favour of more active and practical training. Increased attention was paid to "special methods" and actual teaching practice, whether with the potential instructor classes or with Trade Centre pupils.

The trade experts selected subjects for the "special methods" and the teacher trainees prepared lesson plans and notes, which were then vetted by the experts and their counterparts. Trainees also prepared teaching aids and models. They were supervised individually and all their work was subjected to individual or group criticism.



## THE FIFTH AND FINAL COURSE

The I.L.O. instructor-training expert remained behind in February 1967, shortly before the project terminated, in order to conduct the last instructor-training course under project auspices. Since this course – the Centre's fifth – would last six months beyond the cut-off date of the project, the U.N.D.P. approved an extension of the expert's contract to September 1967. This enabled him to help integrate the instructor-training programme into the U.N.E.S.C.O. project at Yaba that was to assist the establishment of the National Technical Teacher Training College (N.T.T.T.C.), which offered its first courses in October 1967. Six months later, 57 teacher trainees were enrolled in courses devoted to mechanical and electrical engineering, the automotive and the building trades.

The fifth course was completed on 15 September 1967, thus lasting seven months instead of the eight month period of the three preceding courses. In all, 33 trainees enrolled, completed the course and qualified. The subjects covered were mechanical engineering (5), electrical engineering (5), automotive engineering (5), sheetmetal work (2), welding (3), plumbing (1), carpentry and joinery (3), cabinet making (2), wood machining (1), painting and decorating (3), brickwork (3). The emphasis in the course was on providing practical teaching experience with actual classes in the Trade Centre.

As the I.L.O. expert had by then left, the instruction was given by the national counterpart instructors, including the special methods (practical workshop teaching) which had hitherto been largely carried out by the I.L.O. experts. The performance and technical proficiency of the counterpart staff were very highly rated by the I.L.O. expert.

An additional course introduced in the fifth programme was a first aid course provided by the Nigerian Red Cross Society. All trainees who participated passed the test and received first aid certificates.

### POTENTIAL INSTRUCTOR TRAINING

The programme for training potential instructors at Yaba, also known as the skill upgrading programme, proceeded side by side with full instructor training. During the project, three courses for poten-

tial instructors were conducted with a total enrolment of 337 trainees. They were an integral part of the project and provided the main source of recruitment for the later instructor courses. (Appendix J gives the details.) When the instructor-training programme was later absorbed by the N.T.T.T.C., the Yaba Centre's main function became upgrading training.

The object of the scheme was to upgrade trainees from the intermediate level of the City and Guilds of London Institute to the final or advanced certificate which had been stipulated as the required technical qualification for a trade instructor in Nigeria. The course would also serve to raise the standards and qualifications of the individual trainee, and even if he did not enter the instructor-training course, it would increase his chance of promotion when he returned to industry. In fact, four men were trained to advanced City and Guilds certificate level for every one who actually became an instructor. A list of training courses organised for the City and Guilds of London Institute examinations is given in Appendix N.

## THE FIRST COURSE

The first potential instructors' course, which opened in February 1964, was planned to last 15 months and to produce a certain number of instructors who would then undergo a further six months of training. The course covered 12 trades (see Appendix J). All classes followed the syllabi of the City and Guilds Institute.

The project team was gratified at the response to their recruitment campaign. Advertisements had been placed in the national and regional newspapers and far more candidates applied than there were places available. Most of the applicants were sponsored by government agencies or private firms; the majority were in the former category.

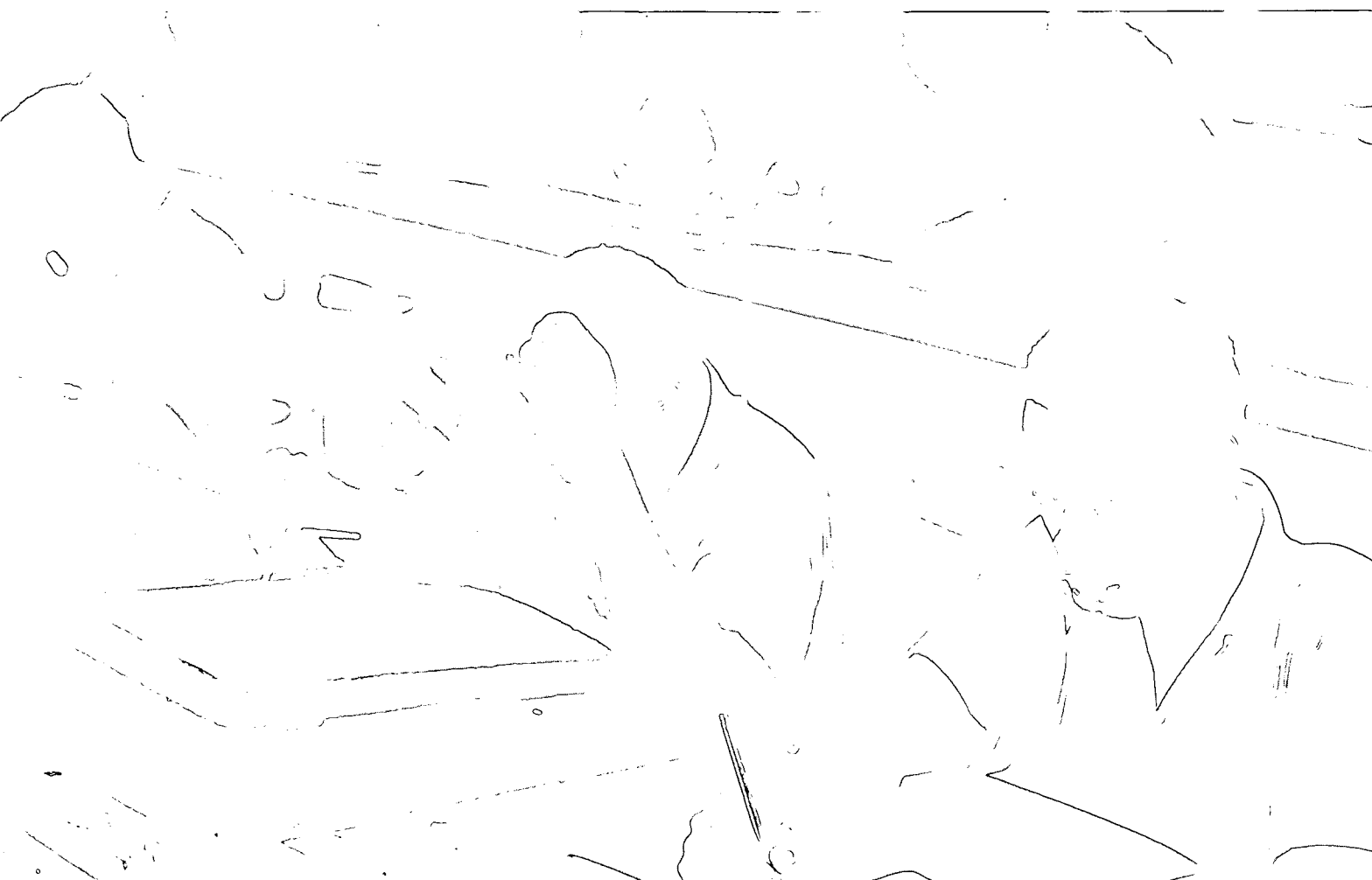
Of the 133 trainees enrolled for the first course, 54 had already applied as external candidates for the City and Guilds final examinations, which they took after only three months of the course; 27 of them passed. The upgrading course continued for the remaining 12 months with 101 students, including most of the 27 who had failed the 1964 examination. As in the instructor-training course, the trainees were selected on an equitable basis from the regions and there was a good balance among the trades as well.

A practice examination based on past City and Guilds papers was given. The results gave rise to high



△ The fitters' shop at the Yaba Trade Centre.

▽ Draughtsmanship is an essential part of a vocational instructor's preparation.



hopes that the actual examination would produce a large number of passes. These hopes proved to be justified, the large number of passes exceeding the expectations of the I.L.O. experts. Of the 115 examinations taken by the 101 students (some took examinations in more than one trade subject), 20 first-class passes and 80 second-class or ordinary passes were obtained. There were only 15 failures. Details are given in Appendix O, which also shows that the results compare very favourably not only with those of the United Kingdom for the same examination, but also with those of other countries.

In electric welding, brickwork, painting and decorating, plumbing, mechanical engineering craft practice (part II), the students obtained 100 per cent. passes, compared with percentages ranging from 68.1 to 81.1 for these five trades in the United Kingdom.

## THE SECOND COURSE

Certain changes were made in the programme for the second course, which started in September 1965. The period was limited to one academic year (i.e. 10 or 11 months' training) and each year ended with the May/June City and Guilds examination. At least a year of post-apprenticeship industrial experience was a condition of admission, and the emphasis was on the practical side.

Courses were structured so as to contain at least 50 per cent. of practical instruction in order to compensate for the trainees' lack of industrial experience. The precise ratio of theory to practice varied according to the trade, but the general plan was to include an equal measure of Related Instruction, i.e. calculation, drawing, and social studies.

The second course trainees exhibited a higher standard of skill than those in the first course, largely because they had been more carefully selected.

Despite the reduced course duration, the results of the examinations were very satisfactory and a high level of passes was obtained. Of the 109 subject examinations for which 90 students entered, there were 19 first-class and 70 second-class (ordinary) passes and only 20 failures. Apart from brickwork, painting and decorating, in which poor average results (40 and 37.5 per cent. respectively) were obtained, this batch of trainees secured a higher level of passes than the candidates from either the United Kingdom or other countries. The poor results in the two subjects mentioned were no doubt due to the increased stringency of the examination standards, as the work of the students during the course had been up to standard.

## THE THIRD COURSE

This course began on 12 July 1966 and again there were far more applicants than could be taken in. Nearly 900 candidates applied and 363 were called for interview. The aptitude tests and interviews lasted for nearly a week and in the end 121 candidates were selected, of whom 116 started training. An additional examination in gas welding was held in December 1966. The quality of the trainees was very high and the experts' expectations were met when the 1967 examinations produced a high percentage of passes.

In December 1966, the conduct of the courses was handed over completely to the Nigerian counterparts. To assist them in their future work, the I.L.O. experts had prepared comprehensive Instructors' Manuals for each trade, which are based on the City and Guilds of London courses. These were massive volumes, ranging from 300 to 600 pages, with texts and illustrations. The counterparts had in many cases themselves helped to compile the manuals.

# V

# SUPERVISORY TRAINING

What is a supervisor? What is his area of responsibility? What are his functions in a developing country? How can supervisors be trained to carry out their duties more effectively and thus help raise the productivity and efficiency of their undertaking? These questions were the starting point from which the task of establishing a Supervisory Training Centre was tackled.

Not too long ago in Nigeria, the supervisor was the equivalent of the old master craftsman. He was a real “boss”, with power to hire and fire, and believed in the use of the whip as the main spur to harder work and obedience. The practice of supervision in a modern industrial society involves completely new approaches and new techniques in handling people. Qualities of leadership, an ability to plan, technical proficiency and clear self-expression are all part of the modern supervisor’s armoury. Often he is involved in disputes between management and workers. Although he himself may be a skilled worker promoted from the ranks, he has come to be identified with management. In addition, he forms a vital link between top management and labour.

In some Nigerian industries, especially in those with a high level of technology, the shortage of trained supervisors has forced many companies to use technologists and technicians in supervisory posts. Apart from the waste of high-grade manpower which this entails, the practice is also costly. Foreign private industrial organisations have had to employ expatriate supervisors at a much higher cost than they would have to pay Nigerians. In plants where Nigerian supervisors and foremen are employed, high-grade staff still oversee work flow, attend to routine inspection of work methods, adjust machines and solve various operational problems.

Trained supervisors and foremen, on the other hand, can relieve higher management of many of the day-to-day responsibilities of industrial administration and allow the latter to concentrate on long-range planning and control. Supervisors and foremen can give top management the benefit of their more intimate knowledge of the workers’ attitude towards management’s policies because they are in day-to-day contact with the workers. Where top-level managers are mostly expatriates, as is the case in many large companies, Nigerian supervisors and foremen help to create harmonious industrial relations. Thus, the training of supervisors and foremen is an indispensable factor in Nigeria’s advancing industrialisation.

## THE TRAINING APPROACH

Except in the very large companies, formal supervisory training schemes were not available until the project started. The training approach fostered by the project had to contend with the low standard of education of most Nigerian supervisors. Many had received only primary schooling and owed their position as foremen purely to their length of service with their firm.

The problem facing the project organisers was to devise a training system that would produce a “common denominator” for supervisors. The problems of supervision are very different in the larger undertakings, such as the railways and ports, from those in the small-scale businesses, which represent the bulk of Nigerian private industry. Moreover, supervising cocoa or groundnut plantation workers is a different proposition from supervising dockers, engineering or brewery workers.

There are, however, certain fundamental principles that are common to all forms of supervision, and knowledge of many subjects can be imparted through instruction. Technical information about industrial organisation and safety precautions are two subjects that can be easily taught. Instruction can be given in the use of language and in the arts of writing reports and public speaking. Such questions as human relations, leadership, and the delegation of responsibility are more intangible. But here, practical aids – such as the use of case studies and business games, commonly used in management training – can assist the supervisory trainee and increase his knowledge and self-confidence.

The aims of supervisory training were clearly laid down by the I.L.O. as being:

- (a) to raise the supervisor's level of technical knowledge, skill and general education above that of the people he is supervising;
- (b) to equip him with attitudes, social skills, and managerial knowledge and skills to perform his task effectively;
- (c) to create the social and organisational environment within which he can operate effectively and develop his personality.

The first expert in supervisory training pointed out in a circular to Nigerian management that training by itself could not turn someone who is not a supervisor into a supervisor, but it could help him to identify and tackle his problems on the job, if not to solve them. The essence of training, in his view, was to start a “development” process, to make the supervisor recognise and accept the need to change his ways and adopt new methods. To this end, the courses contained a carefully balanced blend of theory and practice, with emphasis on student participation.

It was significant, the expert noted, that at the beginning, most of his trainees said they thought they could become trained as supervisors during the basic six weeks' course. At the end, they all admitted that they still needed more knowledge and a longer training period. Many of them asked the expert whether similar training could be given to their manager.

This is perhaps the crux of the problem. Too many industrial managements pay lip-service to training and assume that if they have sent their foremen and charge-hands on a course for so many hours and they return with a certificate, there is no more to be done. Yet, unless top-level managements are pre-

pared to appreciate the supervisor's practical problems on the job, and assist his further development, the training will have largely been wasted.

It was for this reason that all the I.L.O. supervisory experts made sure that the firms invited to support the project were informed in advance about its purpose. They kept in close touch with industrialists throughout the courses and arranged to follow the progress of the trainees once they had returned to their jobs.

## THE FOUR PROGRAMMES

After the original Plan of Operation was modified to permit the regionalisation of supervisor training, courses were conducted in Ibadan, Enugu and Kaduna for trainees coming from the respective regions. The first programme drew its trainees from all the regions and was based in Kaduna. During the project, the four programmes trained a total of 417 supervisors in six-week full-time courses and 220 in two-week full-time or part-time courses. In addition, 69 trainees participated in a two-day discussion that reviewed the progress they had made since leaving the course. Full details about all four programmes are given in Appendix K.

### KADUNA (Federal Programme)

The original intention in the Plan of Operation was to concentrate supervisory training on a national basis at Kaduna in the north. After 15 months under the guidance of the expert, it was continued on a regional basis under the direction of his counterpart, after a decision had been made to conduct similar courses in each region. Details of the first proposed course circulated to about 450 firms, each of which employed 50 or more workers. Over 150 applications were received, ensuring a full complement not only for the first but for subsequent courses. Usually, there was a lengthy waiting list.

The courses were planned to last six weeks, on a full-time residential basis. The first one began on 25 February 1964 and ended on 2 April. There was only one I.L.O. expert in post.

The basic objectives of the training were set out in the Chief of Project's circular, which proposed that trainees should be enrolled from the ranks of foremen

and others who had some work experience but whose education was inadequate. Each trainee would be sponsored by an approved employer or government agency, and his standard salary would continue to be paid throughout training.

The course would cover the following supervisory training subjects:

- Personnel supervision, including human relations, communication, induction, apprentice training, decision making and grievance procedure.
- Technical workshop supervision, including principles of organisation, work planning and control, inspection and quality control, plant maintenance, safety and work simplification.
- Instruction in various non-trade subjects – report writing, basic economics, labour legislation, reading of drawings and elementary costing.

The first course, held in the Kaduna Technical Institute, was attended by 13 foreman trainees. They came from a variety of backgrounds and regions – five from private employers (engineering, telecommunications, paper making), four from government departments (transport, printing and boat building) and four from research institutes (industry, agriculture and university).

From the project's outset, it was apparent that the problems presented by foreman training in Nigeria were usually due to the lack of appreciation on the part of managements; managements would have to become aware of the importance of supervisory training if new technologies and higher rates of production were to be successfully implemented without disproportionate capital expenditure. The practical objectives of the mission would be to give trainees some immediately useful training, to develop supervisory ability, to point the way to further progress, and to inculcate an understanding that training is only a beginning and must inevitably be a long-term business.

The expert sought advice from a number of local employers about the special points that required attention, and found that these included the need for foremen to acquire more experience in analysing problems and in self-expression. He drew up a plan of work for a basic six-week course, which allowed for a session at the end of each week to review the week's programme and discuss the problems arising from it.

The expert reported favourably on the students' reactions. There was no obvious language barrier, but care had to be exercised in explaining technical terms. Tests were held half-way through the course

and produced encouraging results. The students were most at ease in dealing with questions involving human relations, but less happy when it came to the more technical subjects such as production control. The expert reported the need to include a course on basic economics and to provide even more opportunities for students to analyse problems and to acquire practice in writing. In general, he was satisfied that he had managed to put across to the group the idea that "supervisory training is important and practical".

The second course was attended by 16 students, drawn from the same kind of background as those in the first. All but two passed the final examination set by the expert. He devised a follow-up questionnaire to help in assessing the practical value of the course. This included questions designed to elucidate the extent to which the supervisor was able to delegate his work, remove accident hazards, deal with his subordinates, and improve methods of selection and induction of new entrants.

This very full and comprehensive questionnaire would be filled up by the trainee supervisor in co-operation with his superior three months after the end of the course, in order to provide a check on what the trainee had assimilated and what he had put into practice. At the same time, a rating chart was drawn up that assisted the superior to assess how far his supervisor's performance had been improved by his attendance at the course.

In all, seven six-week courses were held on a federal basis at Kaduna and were attended by 105 trainees from all over the country.

## EXPANDING THE PROGRAMME

At an early stage in the project, the individual regions decided to operate their own supervisory training centres. It was therefore agreed with the federal Ministry of Education that courses would be held in the local Technical Institutes at Kaduna for the North, Ibadan for the West, Enugu for the East and Benin for the Mid-West. The principal of each Institute would assume responsibility for the courses. I.L.O.-trained counterparts were posted to each region in December 1964 to organise management seminars and prepare their regional training programmes, under the guidance of the I.L.O. expert. In the North, the I.L.O. expert's counterpart assumed command at Kaduna, where the first six-week course

opened in May 1965. The I.L.O. counterpart for the Eastern Region began training at Enugu in October 1965.

## IBADAN (West)

The expert took up his appointment on 15 September 1965 and followed the same broad pattern of training as in the federal scheme. Following discussions with his counterpart and with leading local industrialists, the expert decided that as the educational background of many of the trainees was somewhat limited, less time should be spent on the rather more technical subjects, e.g. production control, costing and budgeting. Instead, more time would be devoted to questions of human relations, teaching techniques, communications, work organisation, accident prevention, and subjects of day-to-day concern to the supervisor. Wherever possible, the presentation of subject matter would be simplified.

The programme was incorporated in a Supervisor's Training Manual. Films, charts, filmstrips and slides were used whenever they were appropriate. At the end of each week a session was devoted to a review of the week's work. There was an examination at the end of the third week, covering all subjects dealt with up to the half-way mark, while at the end of the sixth week a three-hour test, either written or oral, was given to ascertain the practical benefits of the training. At a final formal session, speeches were delivered by the principal, a representative of the Ministry of Education, the lecturers, and trainees; certificates were then presented.

The comprehensive six-week course covered virtually every aspect of a supervisor's job (see Appendix M). The expert had prepared a set of detailed notes for the guidance of his counterpart and future teaching staffs, which were then incorporated in a Supervisor's Training Manual.

In all, five basic courses were held during the expert's stay between 31 May 1965 and 1 July 1966. Attendance rose from 12 for the first course to 22 for the final one, and averaged 18 for each course. A year after the project ended, the second supervisory training course conducted by the former counterpart since his return from abroad had 18 trainees enrolled.

For the benefit of small-scale employers who could not release their foremen for the full six-week

period, the expert organised a series of short two-week "orientation" courses on the lines of those that had been originally held at Kaduna. Two "orientation" courses were held during 1966, and each was attended by 22 supervisors.

The I.L.O. expert and his counterpart concentrated on following their trainees' progress after each course. Those who had attended were asked to fill up a questionnaire, giving their opinions about the course, the lectures, and the syllabus, and suggesting what kind of further training would be useful. A form was sent out to their superiors, asking for an evaluation of the supervisor's performance before and after the course.

The expert also organised two-day follow-up courses, at which former students could get together and discuss the practical application of their training in their jobs. Three of these courses were held and were attended by 69 graduates from previous courses. All agreed that the opportunity to exchange experiences and discuss their practical problems had been of great value. Their success can be gauged from the fact that the first follow-up course was attended by six former trainees and the third by 33.

The expert also planned special one-week courses, at which a particular subject would be studied in depth. These would be arranged for supervisors who had completed the six-week basic course.

Most of the trainees were in their mid-thirties, and they formed a representative cross-section of western Nigerian industry and public services. Their range of interest can be seen in their job descriptions, which included not only foremen and supervisors, but charge-hands, overseers, storekeepers, inspectors, technical officers, mechanics, fitters, superintendents, clerks, accountants, and administrative assistants. Participants from government departments, particularly their engineering and transport sections, predominated. From private industry, many of the larger enterprises (even those which had their own training schemes) supported the project – including Guinness Breweries, the Oxford University Press, the Nigerian Ports Authority, and Mobil Oil. The industries and occupations represented ranged from building and banking to textiles and tobacco. Forestry and agriculture were well represented. The training, which cost N£10 for the six-week course and N£3 for the two-week course, was clearly accepted by many Nigerian employers as not only good value for money, but also a sound investment for the future.

## **ENUGU (East)**

The I.L.O. expert followed a similar training pattern in the Eastern Region. During his stay at Enugu, five six-week basic courses were given, each with an average enrolment of 24 students, and two short part-time courses attended by 148 students from the Technical Institute.

It became evident that the courses were well supported by the region's industrialists when, in October 1966 – only a year after they began – the waiting list had 160 foremen and supervisors. The expert and his counterpart paid regular visits to employers in Port Harcourt, Aba, and Onitsha, and kept in close touch with employers in Enugu. This contact enabled them to ensure that the programmes met industry's needs, and helped them to follow the progress of former students.

As in the Western Region, the expert and his counterpart laid great stress on “following-up” arrangements. They organised an effective system of information feed-back, which was helpful in planning future programmes. They also arranged follow-up courses for former students.

An innovation introduced was a one-week course in accident prevention. Its syllabus emphasised the supervisor's responsibility for both safety and for training operatives in safe methods of working and in proper housekeeping. “If the foreman does not take safety seriously, those under him will not either”, it warned.

The week's programme consisted of 15 subjects and a course review at the end. Subjects included: principles of accident prevention, safety organisation, causes of accidents, job safety analysis, promoting

worker interest, plant housekeeping and fire prevention, handling materials, safe use of apparatus, education and training. Lectures made liberal use of charts and films.

The counterpart became course manager and chief lecturer after the expert's departure.

## **KADUNA (North)**

The courses at Kaduna Technical Institute were continued on a regional basis by the counterpart, following 15 months of operation on a national basis under I.L.O. guidance. They maintained the high standards that had been set in the early days of the project. The counterpart organised five six-week courses and two short “orientation” programmes for supervisors who could not be spared for the full period. He also held a one-day seminar for 35 employers in the Ilorin area, and took part in a series of seminars on “Management for Efficiency” at Kaduna in the spring of 1966. He was transferred to other work towards the end of the year and was succeeded by another counterpart.

Towards the end of the project, in July 1966, a useful conference was held at Enugu, which brought together the I.L.O. experts and their counterparts to exchange information and experiences. The aim was to harmonise, rather than standardise, their programmes and to ensure the even and progressive development of supervisory training.

After the I.L.O. experts had left in 1966, it was expected that the supervisory training programme, which was soundly based in three regions, would continue on the lines established during the project.



# VI THE FELLOWSHIP PROGRAMME

In all, 18 Nigerian counterparts to the I.L.O. experts were appointed during the life of the project, 14 at Yaba and four for supervisory training in the three regions. Their names, trades and fellowship details are given in Appendix C. In addition, three members of the Trade Centre staff were temporarily seconded to aid the I.L.O. team.

Counterparts were selected from students who had completed the instructors' training course. After the initial delays already referred to, the earlier arrangements made for their appointment, training, and fellowships, and for their gradual take-over of responsibilities, were implemented according to plan.

Overseas fellowships were taken up by 15 of the counterparts. Thirteen were awarded to Yaba graduates for study at the College of Technical Education, Huddersfield, in the United Kingdom. Two counterparts in supervisory training studied at the I.L.O.'s International Centre for Advanced Technical and Vocational Training in Turin, Italy.

The first batch of six counterparts, selected from the Yaba instructors' course, spent 11 months at Huddersfield from September 1964 to August 1965. Their subjects included teacher training, cabinet making, carpentry and joinery, mechanical engineering, brickwork, and motor vehicle repair. The second team of four men, selected from the second instructors' course at Yaba, studied welding, painting and decoration, plumbing, and electrical trades between September 1965 and June 1966. The last two students to receive fellowships who had graduated from the third Yaba instructor course were in England from September 1966 to June 1967, studying the electrical trades and sheetmetal work.

At the end of their training period, the Yaba graduates received the technical teachers' certificate of Leeds University. All counterparts were required to

submit at least four reports, including a final one, and to state the benefits they felt they had derived from their fellowship study.

Five of the original six fellows returned to Yaba, but the counterpart for motor vehicle technician training decided to remain in regional service. Two of the second batch became counterparts, one in wood machining and the other in welding; two refused appointments (their trades were painting and decorating, and plumbing).

The government liaison officer received an extended fellowship, which enabled him to spend an additional two months in the United Kingdom and to study the administration of training centres and technical colleges. During his absence, a member of the Trade Centre staff was nominated to act in his stead.

The Huddersfield College of Technical Education was chosen by the I.L.O. because it provides teacher training in subjects similar to those taught in the Nigerian Trade Centres and related to the City and Guilds examinations. Moreover, it enrolls a considerable number of overseas students from developing countries.

Its programme includes building, mechanical engineering, painting and decorating, teaching methods, and general subjects. The general syllabus has four main parts:

1. **Principles of teaching** – how young people learn and remember; their mental, physical and emotional development; the principles of learning and remembering; methods of communication and presentation of teaching material; the use of illustrative materials and teaching aids, and the less formal techniques used in technical and commercial instruction.



2. **English and speech training** – to help students write and speak effectively, with practice in debating; procedure for meetings and conferences; and discussion of current affairs.
3. **Education** – the development, organisation and administration of education, particularly further education; the philosophy of education; industrial and vocational training; comparative studies in further education and vocational training.
4. **Special methods** – the practical application to a trade or craft of the techniques learned in the class-room.

There are no written or practical examinations during or at the end of the course, but each student is assessed continuously throughout the session. This enables the tutor to check the student's progress and correct any shortcomings that might come to light during the assessment.

For 12 weeks during the course, the Nigerian students taught in English technical colleges. At the end of the course, they spent six weeks doing practical work in their own trades in selected British firms.

Most of the counterparts agreed that the two main benefits they had gained from their fellowships were an understanding of psychology and practical teaching experience. They knew their own trades from a practical point of view, but had previously lacked confidence in putting over their knowledge to a class. They agreed that the training course had broadened their knowledge and would enable them to teach more effectively when they returned home. They were confident that they would be able to translate the knowledge acquired into terms that were appropriate for Nigerian conditions.

Many of the fellows returned to the Yaba Centre, one as Senior Technical Instructor, another as substitute Vice-Principal and the rest as instructors. Of those who did not return to the Centre, one became assistant lecturer at the National Technical Teacher Training College (N.T.T.T.C.) at Yaba, another became a teacher at the Technical College in Ibadan, while another was appointed as a technical instructor at the Kwara State Technical College at Ilorin. Three returned to work at the Trade Centre at Owerri. None of the fellows left the teaching profession to take up jobs in private industry following their return to Nigeria.

# VII EVALUATION AND RECOMMENDATIONS

By the time the project had ended, those responsible for its operation expressed confidence that it had achieved its broad objectives. The number of graduates from the courses certainly confirm their conviction. The project had established three training programmes on sound foundations, which enabled the Nigerian authorities to develop the programmes along the desired lines. A large pool of qualified and potential instructors had been trained to the exacting standards of the City and Guilds Final Certificate and were competent to teach in the Trade Centres and in industry's training schemes. Foremen and supervisors who participated in courses had a better understanding of how to analyse their problems, undertake solutions and criticise their own performance.

Since instructor training represents an essentially long-term investment, it is difficult to assess the immediate results of the I.L.O. project at Yaba, or to estimate its short-term contribution towards meeting Nigeria's needs for skilled manpower. By the same token, the benefits of supervisor training necessarily take time to mature, and it is therefore not easy to measure the achievements of the supervisor training centres in concrete terms.

Apart from the following questionnaires devised for foremen and supervisors mentioned earlier, the systematic charting of the progress of the individual trainees was not undertaken, nor were their occupations and earnings after graduation recorded. It is known, however, that most of the instructors trained at Yaba took up posts within the Yaba Centre while others are employed in government trade centres. Since the project was the first of its kind and no standard of comparison exists for measurement purposes, it is particularly difficult to assess the by-products of the project. For these reasons, any ap-

praisal or evaluation must be limited to the quantitative achievements of the project.

## **Project Results**

The project accomplished what it set out to do. In specific terms, it established:

- (a) an instructor training scheme from which 116 qualified instructors graduated;
- (b) an upgrading scheme to train craftsmen to the advanced level of the City and Guilds of London Institute; 212 men qualified under this scheme and another 125 took their final examinations shortly after the project ended; and
- (c) a supervisor training programme that trained 417 supervisors in long-term courses and 220 in short courses.

All of these programmes were in full operation a year after the project ended, and their future was assured. All except two counterparts trained by the project team were still with the Centre a year later. The two took up instructor posts at other training centres.

National counterparts were trained and assumed operation of the programmes when the I.L.O. experts departed. Comprehensive instruction manuals had been compiled during the project for the programmes' Nigerian staff; counterparts frequently assisted in the work. Finally, the programmes were based on up-to-date workshop equipment and teaching aids, both supplied by the U.N.D.P.

The numbers trained at the Yaba Centre might seem small in relation to the total needs of Nigeria. But, apart from the fact that accommodation at the Centre was limited, to have attempted to train a

larger number would have meant sacrificing quality to quantity. In any case, the multiplier effect of instructor training should be taken into account, particularly since nearly all of the instructors who qualified and graduated have joined Trade Centres.

Evidence of the high standards achieved at Yaba is provided by the successes realised by the potential instructor candidates in the City and Guilds examination. As mentioned earlier in this report and given in Appendix O, their percentage pass rates surpassed those achieved by students in the United Kingdom and other countries. These results were attributed by officials of the London Institute to careful selection and good teaching.

Another indication of the value of the training scheme is the fact that the Vice-Principal, two senior technical instructors and 12 technical instructors of the Yaba Trade Centre were chosen for their positions as a result of their participation in the project.

The fact that the project was a "lodger" on the Yaba Trade Centre and had no institutional identity of its own presented some difficulties. These never assumed insuperable dimensions, largely owing to the efforts of the government liaison officer.

A very important feature of the project was the manner in which it retained its national character throughout its life. At Yaba, trainees and teachers from all the regions worked side by side and lived together in the hostels. Selection was done on an inter-regional basis and the certificates were nationally and internationally recognised.

Whether or not they all became instructors, the trainees who emerged from Yaba were well qualified to play a constructive role in Nigeria's industrial development. They could act as a spearhead for industrial progress in the remoter areas of the country, not to mention the more developed ones.

In setting high standards of qualification and in helping to develop a reservoir of skilled manpower and improve the level of supervisors, the project made a real contribution towards fulfilling the aims and aspirations that were expressed in the National Development Plan to speed the rate of growth, raise living standards and give Nigeria "an increasing measure of control over her own destiny".

In order to consolidate the investment made by the project, the Government made considerable efforts following the project to assign graduates to instructor positions, partly by offering assignments upon termination of the training courses and partly by advertising. The success of these efforts is partly attributable to the attractive salaries offered to

instructors at the project termination. A technical instructor in a Trade Centre was then being paid an annual salary ranging from N£684–N£1,164. A senior technical instructor was earning between N£1,212–N£1,584 and vice-principals had a fixed salary of N£1,860 per annum. On the whole, these salaries compare favourably with those paid in industry for positions requiring similar qualifications.

## RECOMMENDATIONS

The instructor training component of the project formed the nucleus of the new National Technical Teacher Training College organised in 1967 with the assistance of U.N.E.S.C.O. Planned on a scale that will meet the foreseeable needs of the whole country, the college will provide instructors for technical and vocational institutions besides company training centres. Training for instructors specialised in on-the-job training of semi-skilled workers is taking place separately.

When the project ended, the I.L.O. transmitted the following recommendations to the Government of Nigeria to ensure that the high standards set by the I.L.O. experts and their counterparts would be maintained after the project terminated. These recommendations fall into two groups.

## TRADE UPGRADING

In order to maintain the high standards of the trade upgrading programme, the Yaba Trade Centre – upon which the programme is based – should re-introduce the intermediate craft certificate of the City and Guilds of London Institute as the primary objective of its basic training programme. This certificate had been discontinued before the project began. The standard of the upgrading can be more easily guaranteed if it is made a separate programme of the Yaba Trade Centre.

The present capacity of the upgrading courses is limited by a shortage of accommodation and the length of the courses themselves. Moreover, they require prolonged absence from home by people from distant regions for whom the Centre has the expense of providing board and lodging. Consequently, the expansion of the programme on a wider geographical basis would have a number of ad-

vantages. The necessary teaching manuals already exist for an expanded programme. Instructors who have themselves graduated from both the upgrading and the instructors' training programme should be capable, after a period as understudies at Yaba, of instructing on the advanced level. Another benefit inherent in a nation-wide dispersion of training facilities would be the closer linking of upgrading with supervisory training in many places.

## **SUPERVISORY TRAINING**

The supervisory training programme was soundly established when the project ended. The national counterparts are well aware of the need to review and develop the programme in the light of changing needs. This process will be promoted if occasional meetings, both intra- and inter-regional, can be held where experiences can be exchanged. If the upgrading programme is decentralised, it may be useful to follow the progress of those graduates who do not become instructors, in order to provide them

with functional training if they are promoted to supervisory posts.

Programme administrators should also maintain a continuing interest in those supervisors not concerned with skilled work – the majority of all Nigerian supervisors – and who therefore do not need trade upgrading in the conventional sense. They may well need theoretical or practical training relevant to their particular occupation, besides purely functional training.

No doubt the demand for instructors for occasional on-the-job training of semi-skilled personnel will continue to increase. A complete pedagogical training is neither necessary nor economically justified for such people. They could, however, benefit from an extended version of a supervisors' training course devoted to job instruction. Although this would be a logical and valuable expansion of the supervisors' training programme, it still represents a modular approach to functional training. In no case should it be regarded as conferring qualification as an instructor, for which a complete training course at the National Technical Teacher Training College would be necessary.

# APPENDICES

## APPENDIX A

### Plan of Operation

FOR THE ESTABLISHMENT AND INITIAL OPERATION OF A NATIONAL TRAINING SCHEME  
FOR VOCATIONAL INSTRUCTORS AND FOREMEN IN NIGERIA, AGREED BETWEEN  
THE GOVERNMENT OF NIGERIA, THE INTERNATIONAL LABOUR ORGANISATION  
AND THE SPECIAL FUND OF THE UNITED NATIONS.

Special Fund Allocation: \$1,075,700<sup>1</sup>

Government's counter-  
part contribution esti-

mated at equivalent of: \$ 651,680<sup>2</sup>.

Duration: Four (4) years

Purpose: To establish a national  
training scheme for  
vocational instructors and  
foremen in co-operation  
with the regional govern-  
ments.

Executing Agency: The International Labour  
Organisation

Co-operating  
Government Agency: Federal Ministry of  
Education

For the purpose of the project for training of  
vocational instructors and foremen to be undertaken  
by the executing agency for the United Nations  
Special Fund, this Plan of Operation shall be the

<sup>1</sup> This figure includes the Government payment towards  
local operating costs.

<sup>2</sup> This sum does not include the payments to be made by  
the Government towards local operating costs incurred by the  
Special Fund.

Plan of Operation provided for in our Article 1  
paragraph 2, of the Agreement signed on 10 February  
1961 by the Government of Nigeria and the United  
Nations Special Fund, and is subject to the provisions  
of the said Agreement.

#### I. Purpose and Description

##### PURPOSE

1. The purpose of the project with which this  
Plan of Operation is concerned is to assist the Govern-  
ment of Nigeria in supplementing and strengthening  
the existing facilities for vocational training by provid-  
ing the following schemes of training:

- (i) training of existing instructors and skilled work-  
ers for positions as instructors in Government  
trade centres, and in the training schemes  
operated by the public corporations and major  
employers;
- (ii) training of existing foremen, potential foremen  
and suitable workers in supervisory techniques.

##### DESCRIPTION

2. The operational headquarters of the project  
will be Lagos in federal territory and the project will  
consist of the following two schemes:

- (i) instructor training for existing and potential instructors;
- (ii) supervisory training for existing and potential foremen.

3. The instructor training scheme will have its operational base in Lagos (federal territory). It is estimated that during the first four years 113 expatriates and up to 300 other trainees will be trained to become technical instructors in the trade centres of the Federation. The scheme will provide for:

- (i) short-term intensive courses up to six-weeks' duration in the art of teaching for expatriates and local instructors in service in the regions;
- (ii) a six-month course of training for qualified Nigerian instructors in two three-monthly periods of full-time study during which time instruction would be given in the principles and practice of teaching as applied to vocational training, practical teaching in the classroom and workshop, the keeping of records and the setting up and marking of tests. The "sandwich" type of training is envisaged with three months in training, three months back on the job, followed by a further three months' training. This course would also provide for other qualified instructors employed by local employers and public corporations;
- (iii) for potential Nigerian instructors a two-year full-time course during which further practical instruction would be given in the trainee's own particular trade together with the principles of teaching. The aim of the course will be to bring the instructors to the Final City and Guilds standard in addition to qualifying them as instructors

4. The supervisory training scheme is expected to make a significant contribution towards meeting the expanding need for foremen and supervisors which is increasingly felt in the industrial and commercial concerns operating in Nigeria.

The scheme will be operated on a federal basis in the facilities available in the Technical Institute, Kaduna, northern region. It is estimated that there is a need at present for the training of at least 1,500 foremen and supervisors, all of whom will be trained during the four years' assistance programme.

The trainees will be selected from the following sources:

- (i) persons experienced in their respective trades but lacking basic education, including existing foremen;

- (ii) young men with sufficient academic education but with a limited amount of trade experience.

5. The scheme will provide for courses on a part-time and full-time basis, covering the following ground:

- (a) workshop personnel supervision, including human relations on the job, communication (including instruction), induction, apprentice training, decision making, and grievance procedures;
- (b) technical workshop supervision, including principles of organisation, work planning and control, inspection and quality control, planned maintenance safety and work simplification;
- (c) instruction in subjects relative to the various trades including report writing, economics, labour legislation, trade terminology, shop calculations, reading of drawings and elementary costing.

The time and duration of the courses will be determined by the Chief of Project in consultation with the Education Adviser to the Federal Government and employers.

## II. Work Plan

### A. PARTICIPATION AND CONTRIBUTION OF THE SPECIAL FUND

#### (1) EXPERTS

6. The Special Fund will provide, through the executing agency, the following international team of experts who will be recruited in accordance with the agreed job descriptions and established procedures and their services made available in accordance with the following schedule:

POST	MAN-MONTHS PER EXPERT	TOTAL MAN-MONTHS
1 Chief of Project	45	45
1 Senior Expert	33	33
<b>For Instructor Training:</b>		
2 experts in teaching techniques	30	60
1 expert/instructor plumbing, pipe fitting, welding	24	24
1 expert/instructor carpentry and joinery with associated wood machinery	36	36
1 expert/instructor bricklaying-masonry and concrete work	36	36



POST	MAN-MONTHS PER EXPERT	TOTAL MAN-MONTHS
1 expert/instructor painting, decorating (including spray painting)	36	36
1 expert/instructor fitter-machinist	36	36
1 expert/instructor electrician (electro-mechanic)	36	36
1 expert/instructor motor-mechanics	36	36
1 expert/instructor sheet metal and panel beating (including welding)	30	30
<b>Supervisory Training:</b> 3 experts/foremen and supervisory training	24	<u>72</u>
		<u>480</u>

#### Chief of Project

7. The duties of the Chief of Project will be:

- (i) to serve as adviser to the Government on all matters concerned with the training schemes and prepare training programmes and plans for the training of instructors and foremen, co-ordinate the work of a team of international personnel who work under his general direction;
- (ii) to supervise the training of all counterpart staff assigned to these schemes.

8. The duties of the Senior Expert will be:

- (i) to establish liaison and supervise the work of the international experts working in the field;
- (ii) to keep all training records of the intake and output of trainees and counterpart staff and such other duties as may be delegated to him by the Chief of Project;
- (iii) to establish liaison and consult with commercial and government undertakings regarding the progress of trainees on return to employment after training and during the follow-up periods;
- (iv) to visit all the training centres operating, as frequently as possible to discuss training progress with the experts and also to ensure that the schemes are functioning in a satisfactory manner;
- (v) to arrange for the supply of stores and equipment as required.

9. The duties of the supervisory experts will be:

- (i) to advise and establish suitable schemes for the training of foremen and supervisors;
- (ii) to prepare all the required syllabi, time-tables, work schemes and other teaching aids (audio and visual);
- (iii) to teach when necessary the subjects listed in paragraph 5 and to train counterpart staff.

It is envisaged that one expert will be required for each of the fields of work listed in sub-paragraphs 5(a), (b) and (c). However, the experts will be recruited in the order listed and if it is found possible to cover all these fields with the first two experts, the man-months provided for the third will be utilised to extend the contracts of the former.

10. The duties of the principles of teaching experts will be:

- (i) to impart training to the instructor trainees in teaching techniques, principles of training, including the use of teaching aids;
- (ii) to train counterpart staff for the above duties.

11. The duties of the by-trades expert instructors will be:

- (i) to impart training to the trainees in their respective trades;
- (ii) to advise and assist where required the preparation of schemes of work, instructional training syllabi, time-tables and instructional working drawings;
- (iii) to train counterpart staff in related theory to practical work, lecturing, workshop demonstration and control.

#### (2) FELLOWSHIPS

12. The executing agency will arrange for the Nigerian staff to study in institutions abroad the work dealing with the training of instructors in the various fields of training for a total of 180 man-months as follows:

Second year – seven fellowships

Third year – eight fellowships

All fellowships are for 12 months each.

#### (3) EQUIPMENT

13. The executing agency will purchase equipment, tools, visual and audio aids and technical books required from abroad to a cost not exceeding \$80,000 on the basis of lists to be agreed between

the Government and the executing agency. The sum of \$80,000 will include the cost of transport to the point of entry into Nigeria and of insurance against all risks right up to the respective centres.

#### 13(A) Miscellaneous

The executing agency will provide the following services at an estimated cost of \$42,000:

- (i) Secretarial and Administrative Services
- (ii) Postal and Telecommunication Service
- (iii) General Office Services

### B. PARTICIPATION AND CONTRIBUTION BY THE GOVERNMENT

#### (1) GOVERNMENT CONTRIBUTION IN KIND

##### (a) Site, Buildings and Workshops

14. The Government will take the necessary action to make special arrangements for holding the courses in the Training Centre at Yaba for instructor training and in the Training Centre at Kaduna for foreman training and will also make available workshops, classrooms, equipment and tools, stores, etc.

At Kaduna the site is contiguous with that of the Technical Institute within a short distance of Kaduna. Separate buildings are available as workshops which are only partly used by the Institute. Housing is available on a nearby housing estate and sites and buildings will be made available for the Special Fund scheme at the starting date.

With regard to Yaba Trade Centre, which has 700 places, this is on a restricted site on the edge of Yaba, which in turn is situated on the mainland a few miles from Lagos Island. The site can be approached readily by road and is in proximity to local industry and to a shopping centre. The Centre has an administrative block, classrooms, a laboratory, well equipped workshops covering all the main trades, stores and ancillary accommodation. There are no hotels but boarding accommodation is available at the adjacent technical institute. Housing is provided jointly for the Institute and Trade Centre. It will not be possible to turn the whole of the Trade Centre over to the project as certain vital courses must continue, but large reductions are planned in the present student population to meet the requirements of the scheme. The Government will arrange that the scheme, as planned, can commence at the starting date but the full accommodation will be available by June of next year.

##### (b) Supply of Records, Data, etc.

15. The Government will make available to the international staff full information in regard to the organisation and practices of training instructors, supervisors and workers. The Government will arrange for experts' visits to government training centres, training centres of industry and commerce in which they may study:

the conditions of work, operations and methods;  
the activities for which trainees will be engaged;  
and the training needs.

##### (c) Local Staff

16. The Government will provide:

- (i) the necessary technical counterpart personnel for the international team of experts within six months of the arrival of the appropriate I.L.O. expert and thereafter as may be arranged with the Chief of Project;
- (ii) for an adequate status of the counterpart personnel which will ensure their services for the duration of the projects;
- (iii) a sufficient number of technical, administrative, clerical and other staff;
- (iv) other teaching personnel which might co-operate in the project for the purpose of supplementing the technical training with instruction in general subjects like civics, language, etc.

##### (d) Equipment, Materials and Supplies

17. The Government will provide:

- (i) such equipment, including office equipment, as may be required in addition to the equipment to be supplied by the Special Fund;
- (ii) materials, supplies, postage, stationery, periodicals, water, power and other miscellaneous items;
- (iii) the cost, from the point of entry, of freight within Nigeria to the project site. This cost shall include clearance, transport, insurance, handling and storage charges within the country;
- (iv) the cost of taxes, levies, fees of duties, if any, which are not covered by exemption.

##### (e) Staff and Facilities for the International Experts

18. The Government shall supply:

- (i) interpreters (English to local languages and vice versa) where necessary;

- (ii) translator qualified to translate technical matter from English into the local language, as required;
- (iii) for the Chief of Project a fully equipped office including facilities for holding small meetings;
- (iv) for the experts, adequate office space.

The Government will make available housing at economical rentals to the experts.

## (2) LOCAL OPERATING COSTS

19. With reference to the payments to be made by the Government under Article V, paragraphs 1 (a) to (d) of the Agreement referred to in the preamble to this Plan of Operation, excepting the cost within the country for transportation of project supplies and equipment, which is a counterpart contribution, the Government shall pay to the Special Fund the equivalent of \$115,000 in local currency towards local operating costs. This amount represents 15 per cent. of the total estimated cost of the Special Fund of foreign project personnel. The above amount shall be deposited by the Government to the credit of Special Fund Account in Chase Manhattan Bank, Lagos, in accordance with the following schedule:

Equivalent of U.S. \$3,500 on signature of the Plan of Operation.

Equivalent of U.S. \$32,600 on 1 January 1963.

Equivalent of U.S. \$43,000 on 1 January 1964.

Equivalent of U.S. \$31,400 on 1 January 1965.

Equivalent of U.S. \$ 4,500 on 1 January 1966.

Payment of the above amounts, on or before the dates specified above, is a prerequisite to operation.

## C. SEQUENCE OF OPERATIONS

20. The executing agency undertakes the following schedule subject to delays beyond its control in providing the expert services called for in this Plan of Operation:

Starting Date:	1 September 1962
Chief of Project:	1 September 1962
Senior expert:	1 October 1962
First teaching expert:	1 November 1962
Second teaching expert:	1 September 1963
Eight craft expert/ instructors:	1 March 1963
First foreman training expert:	1 January 1963
Second foreman training expert:	1 September 1963
Third foreman training expert:	1 January 1964

With regard to the phasing and dates of progress for the project, a time-table will be established and

attached to this Plan of Operation not later than six months after the arrival of the Chief of Project.

## D. ORGANISATION

21. The responsibility for the administration of the training scheme will rest with the: Permanent Secretary, Federal Ministry of Education, Lagos. All correspondence between the executing agency and the Government will be through this official.

22. Major technical decisions affecting the outcome of the scheme will only be taken after full discussion between the Chief of Project and the ministries of education concerned.

23. The Chief of Project will co-ordinate the work of the mission and report to the executing agency, head office, from where he will receive, as necessary, instructions relating to his work and that of the various teams and experts. He will also discharge the overall I.L.O. responsibility in respect of the project.

24. Representatives of the executing agency and the Special Fund, including the Director of the Special Fund Programmes, may visit the project at any time in order to assess its progress and to discuss its development with the experts or government authorities.

## III. Budget

25. In addition to the services and facilities described in section II B, paragraphs 14–18, which shall be provided in kind to the project by the Government, and estimated to cost a total of Nigerian £232,743, the equivalent of U.S. \$651,680, the estimated total cash project budget amounting to the equivalent of U.S. \$1,075,700, will consist of the following:

- (a) the gross cost of experts, fellowships, equipment and miscellaneous expenses, described in paragraphs 6–13 to be met by the Special Fund and amounting to an estimated total of \$964,600 which includes an amount estimated at the equivalent of U.S. \$115,000, representing cash payments in local currency to be made by the Government to the Special Fund towards operating costs described in paragraph 19;

(b) the overhead costs of the executing agency in the amount of \$111,100.

#### **IV. Reports**

26. The Government and the executing agency jointly shall submit to the Special Fund at the end of each calendar year a certified inventory of equipment purchased with the funds allocated by the Special Fund.

27. The Managing Director of the Special Fund will, after conclusion of the project, submit to the Government a final report based on the information supplied by the executing agency.

#### **V. Conclusions**

28. At the completion of the assistance foreseen under this Plan of Operation, the Government will,

in agreement with the United Nations Special Fund and the executing agency, take over full responsibility for the cost of running and maintaining the establishment organised under this project plan.

29. If in the course of implementation of the project one or more of the parties concerned consider revision of this Plan of Operation necessary, such revision will be discussed by the parties concerned and no change shall be made unless all three agree upon it.

30. At the successful conclusion of the project, the Government, the executing agency and the Special Fund will consult with a view to transferring the title to the equipment from the Special Fund, in whose name it has been held by the executing agency, to the Government or an agency nominated by the Government.

Agreed, on behalf of the parties, on November 14, 1962, by the undersigned:

Representative  
of the Government  
of Nigeria

Representative  
of the United Nations  
Special Fund

Representative  
of the International  
Labour Organisation

# APPENDIX B

## Budget

### SPECIAL FUND EXPENDITURE (IN U.S.\$)

	MAN-MONTHS	COST
1. Experts		
Chief of Project and Senior Expert	81	154,980
Instructor Training – Yaba		
10 Expert Instructors	328	454,000
Supervisory Training – Regions		
3 Experts and 2 Consultants	51	96,400
Total: Experts	460	705,380
2. Fellowships – Total	172	52,001
3. Equipment		84,759
4. Miscellaneous		36,650
Total Gross Project Costs		878,790
5. Executing Agency Overhead Costs		114,600
Special Fund Allocation		993,390

### GOVERNMENT EXPENDITURE (IN NIGERIAN £ AND U.S. \$)

	MAN-MONTHS	COST	
		NIGERIAN £	U.S. \$
<b>INSTRUCTOR TRAINING</b>			
1. Professional Staff	882	95,746	268,121
2. Non-professional Staff	945	12,472	34,926
3. Living Allowances for Trainees		60,000	168,020
4. Equipment and Supplies		30,000	84,010
5. Miscellaneous – Contingencies		1,000	2,801
Total: Instructor Training		199,218	557,878
<b>SUPERVISORY TRAINING</b>			
1. Professional Staff	244	21,387	59,891
2. Non-professional Staff	150	2,638	7,387
3. Living Allowances for Trainees		7,500	21,003
4. Equipment and Supplies		2,000	5,601
Total: Supervisory Training		33,525	93,882
Total Contribution in Kind		232,743	651,760
Contribution in Cash for Local Operating Costs		41,067	115,000
Total Government Contribution		273,810	766,760

## APPENDIX C

### Counterpart Staff and Fellowships

Title or Trade	Name	Selected or Appointed for Fellowship	On Fellowship*		Took Up or Resumed Duty	Title Upon Return from Fellowship or at End of Project
			From	To		
Government Liaison Officer	Eli, C.I.	Dec. 1963	Sept. 1965	Aug. 1966	Sept. 1966	Vice-Principal
Teacher Training	Akintomide, R.O.	1964	Sept. 1964	Aug. 1965	Sept. 1965	Assistant Lecturer at N.T.T.C.
Cabinet Making	Olaniyan, K.A.	1964	Sept. 1964	Aug. 1965	Sept. 1965	Senior Technical Instructor
Carpentry and Joinery	Towe, P.E.O.	1964	Sept. 1964	Aug. 1965	Sept. 1965	Acting Senior Technical Teaching Instructor
Mechanical Engineering	Ojatabu, S.N.	1964	Sept. 1964	Aug. 1965	Sept. 1965	Trade Centre, Owerri
Brickwork	Raji, L.A.	1964	Sept. 1964	Aug. 1965	Refused	Technical Instructor
Motor Vehicle Technicians	(1) Ogbolu, P.I.	1964	Sept. 1964	Aug. 1965	Appointment	Trade Centre, Owerri
	(2) Iwuoha, D.	1966	—	—	Oct. 1966	Not available
Hand Machining	Dioru, A.R.	1965	Sept. 1965	June 1966	July 1966	Acting Senior Technical Instructor
Welding	Yusuff, S.A.	1965	Sept. 1965	June 1966	Sept. 1966	Technical Instructor
Painting and Decoration	Egeonu, C.O.	1965	Sept. 1965	June 1966	Refused	Trade Centre, Owerri
Plumbing	Aina, A.A.	1965	Sept. 1965	June 1966	Appointment	Technical Instructor, Kwara State Technical College, Ilorin
Electrical Trades	Yusuf, K.	1965	Sept. 1966	June 1967	Dec. 1965	Technical Instructor
Sheet Metalwork	Emokaro, P.N.	1966	Sept. 1966	June 1967	Feb. 1966	Technical Instructor

#### SUPERVISOR TRAINING

North	Ladipo, G.P.	1964	—	—	Jan. 1965	
West	Akinbode, F.A.	1964 (Turin)	Sept. 1966	Aug. 1967	Jan. 1965	Teacher, Technical College, Ibadan
East	Achebe, D.S.	1964	—	—	Jan. 1965	
Mid-west	Esheyigba, N.E.	1964 (Turin)	Oct. 1965	June 1966	Not Employed	Not available
Government Liaison Officer	Iyalla, Y.T.S.	1965	—	—	Sept. 1965	

#### TRADE CENTRE STAFF (TEMPORARILY SECONDED)

Painting and Decoration	Azobu, P.	—	—	—	Jan. 1965	
Electrical Trades	Afia, U.A.	—	—	—	Oct. 1966	
Sheet Metalwork	Oyebiwnnu, P.	—	—	—	Oct. 1966	

\* To Huddersfield, U.K., except for Mr. Akinbode and Mr. Esheyigba who went to Turin.

# APPENDIX D

## Expert Services

Description	Incumbent and Country of Origin	Duration of Assignment	
		From	To
CHIEF OF PROJECT	(1) SCHMIDT, N., Australia	26. 3.63	23. 6.65
DEPUTY CHIEF OF PROJECT	(2) TALBOT, A.E., U.K.	17. 7.65	30. 4.67
	CHURCHWARD, W.C., U.K.	7. 1.64	30. 9.66
EXPERTS			
Instructor Training	GRADY, W., U.S.A.	6.10.63	30. 5.66
Instructor Training	ALLABY, R.K., Canada	3.10.64	15. 3.67 <sup>1</sup>
Supervisor Training	MORRIS, A.J., Australia	16.12.63	10.12.65
Supervisor Training	SÄRÍC, A., Yugoslavia	5. 9.65	4. 9.66
Supervisor Training	KEENAHAN, J., Australia	7.11.65	6.11.66
EXPERT INSTRUCTORS			
Motor Vehicle Tech.	BIRCH, R., U.K.	6.12.63	31.12.66
Carpentry and Joinery	(1) GODDARD, T., U.K.	23. 8.63	8.12.64
Cabinet Making		11. 7.65	31.12.66
Wood Machining	ERICSON, R., Sweden	5. 1.64	4. 9.66
Mechanical Engineering		3.11.63	2.11.66
Welding	HOLDEN, R., U.K.	15.10.63	31.12.66
Plumbing	TRISTRAM, N., U.K.	1.12.63	25.11.64
Sheet Metalwork	(2) WADDINGTON, J., U.K.	31. 1.65	31. 8.66
Brickwork	HUTCHINS, J., U.S.A.	19. 1.64	18. 1.65
Painting and Decoration	WATSON, P.W., Australia	26. 9.63	31.12.66
Electrical Trades			

<sup>1</sup> This date was extended to September.

# APPENDIX E.1

## Manpower by Industrial Activity<sup>1</sup>

Industry	September 1959		March 1961 samples	
	No. of employees	Per cent.	No. of employees	Per cent.
Agriculture, forestry, etc.	25,691	5.9	21,773	6.3
Mining and quarrying	41,246	9.5	47,840	13.9
Manufacturing	32,044	7.4	48,301	14.0
Construction	96,849	22.4	72,664	21.2
Electricity, water	16,289	3.8	6,351	1.9
Commerce	38,978	9.0	17,250	5.0
Services	134,704	31.0	94,762	27.6
Transport and communications	47,565	11.0	34,820	10.1
Totals	433,366	100.0	343,761	100.0

<sup>1</sup> Establishments employing ten or more workers only. Statistics from National Manpower Board report, 1963.

# APPENDIX E.2

## Manufacturing Employment 1963

CATEGORY OF PRODUCT	NUMBER OF PLANTS	LABOUR EMPLOYED
Fruits and vegetables, etc.	8	450
Grain mill products	10	1,057
Bakery products	41	1,912
Cocoa, chocolate and sugar confectionery	4	207
Miscellaneous food preparations	14	564
Beer	5	1,293
Soft drinks, carbonated water	20	1,453
Tobacco products	3	978
Weaving of textiles	20	5,606
Knitted textiles	6	975
Cordage, rope and twine	1	13
Textiles not elsewhere classified	1	18
Footwear	11	502
Wearing apparel, except footwear	23	649
Made-up textile goods, etc.	5	248
Sawn timber	64	11,222
Wood products not elsewhere classified	2	35
Furniture	63	5,728



Articles of pulp, paper and paperboard	8	630
Printed products	77	7,703
Tanned and treated hides and skins	9	433
Wearing apparel	3	93
Rubber and rubber products	42	4,725
Basic industrial chemicals	12	708
Vegetable and animal oils	62	7,973
Paints	6	373
Miscellaneous chemical products	33	2,486
Petroleum and coal	2	65
Glass and glass products	3	75
Pottery	6	228
Cement	4	1,782
Miscellaneous non-metallic mineral products	18	1,521
Basic iron and steel products	1	200
Basic non-ferrous metal products	3	614
Other metal products, except machinery	39	2,761
Machinery, except electrical	5	172
Electrical machinery, apparatus and appliances	4	206
Boats	16	4,294
Railroad equipment	2	120
Motor vehicles	18	1,165
Motorcycles and bicycles	4	120
Miscellaneous products, chiefly plastic	6	392
Theatre and music products	1	30
<b>Total</b>	<b>706</b>	<b>73,230</b>

**Source:** Nigerian Federal Ministry of Commerce and Industry, Industrial Labour, Lagos, January 1963, Appendix 1.

## APPENDIX F

### Non-expendable Equipment Provided by the U.N.D.P.

Camera, LEICA M2, 35 mm and SUMICRON lens	Three infrared paint repair units
Electronic flash, BRAUN HOBBY	Hydraulic press, 60 tons
Drilling machine, NEW PACERA 15" MF 4	Insulation testers, megger, 500 v., 1000 v.
Guillotine, NEW BESCO TRUECUT	Flat optical glass, COVENTRY
Duplicator, GESTETNER 300	Set of slip gauges, COVENTRY
Dovetailer, B.K. 24"	Set of combination length bars, COVENTRY
General purpose furnace, WILD BARFIELD	Two drilling machines, STARTRITE SP 250
Spray outfit, AEROGRAPH DE VILLBISS	Three machine plain vices, ABWOOD
Painting unit, Pressure	Machine vice, swivel, ABWOOD
Portable hot spray outfit	Twelve 12" verniers, G. + R.
Backsaw, 6", NEW MANCHESTER	Level, COWLEY
Bending and trunk forming machine, NEW BESCO	Site Square, COWLEY
Trimming and beading slide	Radial arm drilling machine and accessories,
Screw chuck, taper No. 2	RICHMOND
6" comparator, SIGMA MG5E	Vulcaniser, STENOR WORLD MASTER
Stone working equipment, FLEXTOL ST 80 Junior	Two sets of body repair tools BA 523 A
Handpiece, GFB, with sanding disc attachment	Geared bending roller

Rod shearing machine, KRS 1  
 Three record players, MUSIC MAKER DE LUXE  
 Compact control wattmeter, CHAUVIN ARNOUX  
 Four slide projectors, ALDIS 500, with filmstrip carriers  
 Four portable lantern screens, 60"×60"  
 Wheatstone bridge, post office type, P 7616  
 Five upright voltmeters, 0–10 V., P 7330  
 Voltmeter, 0–250 V., P 7340  
 Five ammeters, 0–1 A, P 7328  
 Two ammeters, 0–20 A, P 7338  
 Barlow's wheel, P 7058  
 Faraday's disc, P 7064  
 Avometer, model 40, P 7418  
 Four voltmeters, 0–10 V., P 7334  
 Voltmeter, DC, MAVO-P, 0–500 V.  
 Voltmeter, AC/DC, MAVO-A, 0–500  
 Two ammeters, AC/DC, MAVO-A, 0–50 A  
 Glue spreading machine, BURKLE BDL  
 Double end tenoning machine, WA  
 Test bench, C.12  
 Four tape recorders, SLIMLINE  
 Two ammeters, A 96, 0–100 A  
 Precision straight edge  
 Armature testing growler  
 Hand conduit bending machine  
 6'×4' inspection table  
 Arc welding machine with PERKINS diesel engine, on skids  
 Concrete mixer, BAROMIX COMMODORE  
 Portable electric drills, WOLF WD3C (two)  
 Bench-type grinding machines, WOLF TG 6 (two)  
 3 sets of taps and dies  
 Compression gauges, REDEX, for petrol and diesel engines  
 Set of expanding reamers, RPI-9  
 Valve seat grinder, BLACK + DECKER VIBRO-CENTRIC  
 Metal shearing machine, BESCO B.S.  
 Oxygen welding gauge, BOR.12  
 Acetylene welding gauge, BOR.12  
 SAFFIRE welding set, 39/SW BOC  
 Diesel engine injector nozzle needle grinding set, MERLIN SERVICE MASTER  
 Spark plug cleaning set, CHAMPION 800  
 Screwdriver, C-50  
 Prismatic tracking gauge, DUNLOP  
 Alinger connecting rod, BTS  
 Level, block, 12", TB 11  
 Level, block, BSS 958  
 Four HARRISON 8" centre lathes  
 Two revolving centres  
 Taper turning attachment  
 Hand winding machine, HW 1  
 Shaping machines, ELLIOTT/ALBA (two)  
 Battery charging set + testing unit  
 AC/DC motor generating set, CROMPTON PARKINSON  
 Hand-operated universal swaging, wiring, jennyning and closing machine  
 Four RANK cinema projectors  
 Hand-operated cone rolling machine  
 Universal milling machine, RICHMOND  
 Oscilloscope, P 8068  
 Wheatstone metric bridge, P 7502  
 Voltmeter, 0–10 V., P 7334  
 Voltmeter, 0–250 V., P 7342  
 Five ammeters, 0–5 A, P 7328  
 Surface grinding machine, JONES AND SHIPMAN  
 Precision wheel balancing unit  
 Universal toolroom surface grinding machine, JONES AND SHIPMAN 1300 EIUR  
 Internal grinding spindle, 1656 RH  
 Universal swivelling vice, X13B  
 Light unit Z1 with transformer and lamp  
 Independent chuck, 6", 4 jaw, and backplate  
 Internal spindle 1662 RH  
 UNION G.25 tool and cutter grinder  
 Two HARRISON 12" swing lathes  
 Two four-way toolposts  
 Two 6" 3-jaw chucks and backplates  
 Two 8" 4-jaw chucks and backplates  
 Two revolving centres  
 Two electric suds pumps and fittings  
 Two low voltage lighting fittings  
 Spot welding machine, ELME S-120  
 Universal dividing head, RICHMOND  
 Permanent magnetic chuck B 136  
 Hearth tray for WILD-BARFIELD furnace  
 Treadle guillotine shear, No. 4002  
 Four HANSA D.C. motors, 410/1  
 Two three-phase alternators mounted on a common bedplate and flexibly coupled, THRIGE  
 Three DAVENSET 3 KVA dry open-type transformers  
 Bridge megger  
 Avometer, METROVO

# APPENDIX G.1

## Intermediate Category: Technical and Supervisory Personnel and Non-graduate Teachers

Sector	1958 Reported	1960 Estimated	1970 Target	1970/60 Net Increase	Replace- ment Factor	10-year Require- ment
Agriculture, Forestry and Fishing	231	250	2,500	2,250	750	3,000
Mining, Quarrying, Petroleum	198	275	1,375	1,100	400	1,500
Manufacturing	490	600	3,600	3,000	1,000	4,000
Construction	577	800	2,800	2,000	600	2,600
Electricity, Water and Sanitary Services	218	250	1,000	750	350	1,100
Commerce	854	1,000	3,000	2,000	500	2,500
Transport, Storage and Communications	2,156	2,400	6,000	3,600	1,200	4,800
Government Services	4,007	5,000	15,000	10,000	3,000	13,000
Miscellaneous and Self-Employed	—	500	2,000	1,500	400	1,900
<b>TOTAL (Excluding Teachers)</b>	<b>8,731</b>	<b>11,075</b>	<b>37,275</b>	<b>26,200</b>	<b>8,200</b>	<b>34,400</b>
Post Primary Teachers (Qualified non-Graduate)	3,431	3,700	7,000	3,300	3,000	6,300
Primary Teachers (Qualified non-Graduate)	567	600	11,100	10,500	3,500	14,000
<b>GRAND TOTAL</b>	<b>12,729</b>	<b>15,375</b>	<b>55,375</b>	<b>40,000</b>	<b>14,700</b>	<b>54,700</b>

## APPENDIX G.2

### Additional Requirements for Teaching and Research Staff 1963–70

#### A. SENIOR CATEGORY (GRADUATES)

Institution	Additional Staff Requirements			
	1963–1968		1963–1970	
	Lower	Upper	Lower	Upper
Universities .....	150	1,150	350	1,600
Technical Institutes .....	400	500	500	700
Research .....	500	600	600	700
Teacher Training .....	200	1,000	400	1,500
Secondary Schools .....	1,400	3,000	1,950	3,750
Trade Centres .....	400	600	500	700
All Institutions .....	3,050	6,850	4,300	8,950

#### B. INTERMEDIATE CATEGORY (NON-GRADUATES)

Institution	Additional Staff Requirements			
	1963–1968		1963–1970	
	Lower	Upper	Lower	Upper
Secondary Schools .....	–1,500*	100	– 450*	1,400
Teacher Training .....	– 750*	100	– 450*	700
Research .....	700	700	1,000	1,000
Trade Centres .....	300	500	450	700
Primary Schools .....	28,000	2,200	47,000	47,000
All Institutions .....	26,950	29,600	47,550	50,800

Note – (\*) These figures taken together with the corresponding figures in the Senior Category show that in Secondary Schools and Teacher Training Colleges, the staffing problem is not so much in the number of teachers (which is more than adequate to sustain the proposed levels of student enrolment); the problem is in increasing the number of graduate teachers in substitution for non-graduate teachers.

# APPENDIX H

## Enrolment of Trainees – May 1961

Technical Institutes						Trade Centres
Region	Secondary	Full-time and Sandwich	Part-time Day	Evening	Total	Full-time
Lagos	235	205	238	723	1,401	658
Eastern	207	74	—	172	453	182
Northern	—	226	—	57	283	679
Western	—	31	—	—	31	398
Total	442	536	238	952	2,168	1,917
Grand Total						4,085

# APPENDIX I

## Instructor Training Course

### STATISTICAL DATA

Course No.	Length of Course	Date of Course		Basic Trades														Total Enrolled in Course	Total Completed Course and Qualified
		From	To	Mechanical Engineering	Electrical Engineering	Automotive Engineering	Sheet Metal Work	Welding	Plumbing	Carpentry and Joinery	Cabinet Making	Wood Machining	Painting and Decorating	Brickwork	Motor Body Building	Foundry Practice	Boat Building		
1	6 months	28.10.63	14.4.64	3	4	3	2	—	—	2	4	—	1	3	1	1	—	24	24
2	8 months	6.10.64	28.5.65	5 (-1)	8 (-1)	3 (-3)	—	2	2	1	4	2	1	5 (-2)	—	—	1	34	27
3	8 months	3.8.65	26.3.66	5	5	6 (-1)	3	2	1	5	2	1	2	2	—	—	—	34	33
4	8 months	12.4.66	9.12.66	4	7	6	1	1	3	3	3	2	2	—	—	—	—	32	32
5	7 months	14.2.67	15.9.67	5	5	5	2	3	1	3	2	1	3	3	—	—	—	33	33
Totals	—	—	—	22 (-1)	29 (-1)	23 (-4)	8	8	7	14	15	6	9	13 (-2)	1	1	1	157	149

# APPENDIX J

## Potential Instructors' (Trade Upgrading) Courses

### STATISTICAL DATA

Course No.	Length of Course	Date of Course		Electrical Trades	Sheet Metalwork	Welding	Carpentry and Joinery	Wood Machining	Brickwork	Painting and Decorating	Plumbing	Cabinet Making	M.V. Technicians	Mech. Eng. Craft Pract.	Total En-rolled	Completed Training	Obtained City and Guilds Final/Advanced Certificate
		From	To														
1	15 months*	11.2.64	May/June 1965	17	13	9	13	5	13	15	8	9	16	15	133*	128	116
2	8½/9½ months	1.9.65	May/June 1966	12	8	13	10	-	5	8	-	6	16	16	94	88	70**
3	10/11 months	12.7.66	May/June 1967	15	8	12 +9	11	7	10	11	-	10	16	16	125+	Still under training	-
4	10/11 months	18.7.67	May/June 1968	9	4	9	9	6	8	11	-	10	14	4	84	84	-
Total	-	-	-	53	33	43	43	18	36	45	8	35	62	51	436	306 plus	191 plus

\* 5 left during course .  
 27 obtained Final in 1964 and left or were transferred to teacher training  
 101 completed 15 months course  
133 Total

+ Includes nine welders (electric) from previous course retained for further five months – sat for welding (gas) final in December 1966 by special arrangement.

\*\* Includes 2 candidates from previous course in carpentry and joinery.

# APPENDIX K

## Supervisor Training

### STATISTICAL DATA

- A. COURSES (1) Basic six-week full-time training.  
 (2) Orientation two-week full-time training.  
 (3) Orientation two-week part-time for Technical Institute students.  
 (4) Follow-up two-day full-time discussion.

Course No.	Federal	North		West		East		
	(1)	(1)	(2)	(1)	(2)	(4)	(1)	(3)
1	13	19	14	12	22	6	19	30
2	16	20	11	19	22	30	20	12
3	18	21		17	13	33	16	44
4	13	8		18			18	16
5	11	18		22			20	34
6	20	5		16			24	12
7	14							
Total Participants	105	91	25	104	57	69	117	148

# APPENDIX L

## Timetable for the Fourth Instructors' Training Course

FIRST TERM: 3 months

45 hours:

Trade analysis (dividing a trade into small units for teaching purposes).

45 hours:

Educational aims and organisation (the history and development of education, its organisation; philosophies of education; cultural and social, technical and vocational types of education).

30 hours:

Shop organisation, management and supervision, shop layout, personnel systems, class activities, timetables, recording, inventories, and requisitioning.

30 hours:

English (clear, concise communication and self-expression, basic grammar and composition, spelling and meaning of words).

66 hours:

Orientation (work periods in which trainees study individually, using the reference library, preparing reports and completing assignments).

96 hours:

Special methods (the trainees put into practice in the workshops the theory acquired in instructor training; make a practical analysis, organise shop activities, check tools, materials etc.).

48 hours:

Instructional materials laboratory (periods in which the trainees develop their instructional material charts, graphs, models etc., interspersed with tutorial periods as necessary; practice in public speaking; blackboard practice).

SECOND TERM: 3 months

30 hours:

Course instruction (nature of course study, aims and objectives, course content and other elements making studies of specific trades).

45 hours:

Measurement and evaluation (progress and attainment testing, elements of a good question, preparing tests, types of tests, scores and interpretation, recording).

45 hours:

Methods of instruction (psychology of learning and the learner; planning lessons, types of lessons; student activity and control, audio-visual aids, development of instructional aids).

96 hours:

Special methods. (Emphasis on teaching and supervising shop activities, observation by teacher trainers and I.L.O. expert craft instructors, counselling and correcting, model lessons by experts.)

# APPENDIX M

## Timetable for Six-Week Supervisory Course, Ibadan

1st week:

Introduction (objectives of supervisory training and methods of teaching);

Function of the supervisor (area of responsibilities, his role, "messenger, policeman and leader");

Organisation (principles of organisation, specialisation, simplification, decentralisation, line, staff and functional relationships, committees etc.);

The supervisor's job (how to spend his time, and plan his work, shortcomings and hints for better organisation);

Delegation of responsibility;

Differences in people (attitudes to work, etc.);

Leadership (the supervisor as a leader, what makes good leadership).

2nd week:

Human problems at work;

Foundation for good relations (hints on how to prevent human problems from arising);

Problem-solving (how to handle and solve human problems);

Communications (the network, oral and written methods, technical aids);

Report writing (method of preparation and arrangement, characteristics of a good report);



Conference leading (types of conference, leaders and audience, discussion leading).

**3rd week:**

Principles of learning (aim and methods of instruction, training experienced workers etc.);

Practice in instructing (demonstrations);

Developing training plans;

Giving orders;

Discipline (problems of discipline and indiscipline and hints on how to create discipline);

Decision-making (types of decision, group decisions);

Personnel management (functions of a personnel department, employment, training, industrial relations, safety, medical services, records);

Employee selection (job description, interviewing);

Industrial relations (Nigeria's system of industrial relations and legislation; trade disputes, trade unions, joint consultation);

Introducing the new worker (how to organise induction, the supervisor's role);

Assessing performance (techniques and results).

**4th week:**

Economics (elementary instruction on economic factors, money, competition, banks etc.);

Accident prevention (the supervisor's role in safety precautions, job hazards, and protective measures);

Research and design (basic information necessary for supervisors, new products and processes);

Site selection (geographical, economic, social and industrial factors);

Building and equipment (types of building and design, materials, machines, tools and equipment, supervisor's responsibilities);

Factory visit (briefing in class before visit, discussion after sightseeing with factory experts on special topics – e.g. safety – and discussion in class after visit).

**5th week:**

Standardisation and simplification (advantages and types);

Work study (aim and methods, recording techniques, work measurement, supervisor's responsibility);

Suggestion system (purpose and methods of organisation, benefits);

Plant layout;

Materials handling;

Maintenance (importance of preventive maintenance and inspection, supervisor's role);

Quality control (inspection standards, methods).

**6th week:**

Purchasing (functions of purchasing department, market research, centralisation and decentralisation);

Sales (objectives, sales promotion);

Storekeeping;

Inventory control;

Costing and budgeting.

## APPENDIX N

### Training Courses Organised for the City and Guilds of London Institute Examinations

Subject 51. Electrical Installation Work – Course “C”.

Subject 58. Electrical Fitters.

Subject 66. Sheetmetal Work – Adv. Craft Cert.

Subject 74. Welding (Gas/Electric) – Adv. Craft Cert.

Subject 80. Carpentry and Joinery – Adv. Craft Cert.

Subject 81. Woodcutting Machinists – Adv. Craft Cert.

Subject 82. Brickwork – Adv. Craft Cert.

Subject 85. Painters and Decorators – Adv. Craft Cert.

Subject 86. Plumbers Work – Adv. Craft Cert.

Subject 103A. Cabinet Making – Final Cert.

Subject 170. Motor Vehicle Technicians.

Subject 193. Mech. Eng. Craft Practice, Part II.

# APPENDIX 0.1

## City and Guilds of London Institute – Examination Results May/June 1965

	No. of candi- dates	1st Class	2nd or Ord. Class	Failure	Percent- age Successes
<b>1. ELECTRICAL ENGINEERING</b>					
Course No. 51 Electrical Installation Work – Course “C”	9	3	4	2	77.7
Course No. 58 Electrical Fitters	16	2	12	2	87.5
<b>2. MECHANICAL ENGINEERING</b>					
Course No. 66 Sheet Metal Work – Adv. Craft Cert.	12	–	10	2	83.3
Course No. 74 Welding (Gas or Electric) – Advanced Craft Practice	8	–	8	–	100.0
Course No. 193 Mech. Eng. Craft Practice – Part II	10	–	10	–	100.0
<b>3. AUTO ENGINEERING</b>					
Course No. 170 Motor Vehicle Technicians Work	12	5	6	1	91.6
<b>4. FURNITURE AND TIMBER</b>					
Course No. 81 Wood Machinists – Adv. Craft Cert.	4	1	3	–	100.0
Course No. 103A Cabinet Making – Final Craft Cert.	5	–	3	2	60.0*
<b>5. BUILDING</b>					
Course No. 80 Carpentry and Joinery – Adv. Craft Cert.	12	–	6	6	50.0*
Course No. 82 Brickwork – Adv. Craft Cert.	7	1	6	–	100.0
Course No. 85 Painting and Dec. (Decorative or Ind. Comm.) – Adv. Craft Cert.	15	7	8	–	100.0
Course No. 86 Plumbers Work – Final Craft Cert.	5	1	4	–	100.0
	<b>115</b>	<b>20</b>	<b>80</b>	<b>15</b>	<b>86.96</b>

\* These groups were without an international expert for the last six months of their training.

# APPENDIX 0.2

## City and Guilds of London Institute – Examination Results May/June 1966

	No. of Candi- dates	1st Class	2nd or Ord. Class	Failure	Percent- age Successes
<b>1. ELECTRICAL ENGINEERING</b>					
Course No. 51 Electrical Installation Work – Course “C”	8	1	7	–	100.0
Course No. 58 Electrical Fitters	12	2	9	1	91.7
<b>2. MECHANICAL ENGINEERING</b>					
Course No. 66 Sheet Metal Work – Adv. Craft Cert.	8	1	6	1	87.5
Course No. 74 Welding (Electric) – Advanced Craft Practice	13	–	8	5	61.5
Course No. 193 Mech. Eng. Craft Practice – Part II	15	6	8	1	93.3
Course No. 293 Mech. Eng. Technicians – Part I	11	2	9	–	100.0
<b>3. AUTO ENGINEERING</b>					
Course No. 170 Motor Vehicle Technicians Work	13	3	10	–	100.0
<b>4. FURNITURE AND TIMBER</b>					
Course No. 103A Cabinet Making – Final Craft Cert.	6	1	2	3	50.0
<b>5. BUILDING</b>					
Course No. 80 Carpentry and Joinery – Adv. Craft Cert.	10	2	7	1	90.0
Course No. 82 Brickwork – Adv. Craft Cert.	5	–	2	3	40.0
Course No. 85 Painting and Dec. Adv. Craft Cert.	8	1	2	5	37.5
	109	19	70	20	81.7

# APPENDIX 0.3

## City and Guilds Examinations 1964/65 Comparative Results

Subject	Percentage Passes		
	U.K.	Overseas	Project
Subject 51. Elect. Inst. Work – Course “C”	64.8	57.0	77.7
Subject 58. Electrical Fitters	60.8	66.6	87.5
Subject 66. Sheet Metal Work – Adv. Craft Cert.	60.5	58.8	83.3
Subject 74. Welding (Gas) – Adv. Craft Cert.	66.0	47.8	57.1
Subject 74. Welding (Electric) – Adv. Craft Cert.	68.1	18.2	100.0
Subject 80. Carpentry and Joinery – Adv. Craft Cert.	77.1	41.9	50.0*
Subject 82. Brickwork – Adv. Craft Cert.	69.1	32.6	100.0
Subject 85. Painters’ and Dec. – Adv. Craft Cert. (Ind. and Comm.)	76.5	91.6	100.0
Subject 85. Painters’ and Dec. – Adv. Craft Cert. (Decorative)	65.3	77.7	100.0
Subject 86. Plumbers Work – Final Cert.	69.9	58.8	100.0
Subject 103A. Cabinet Making – Final Cert.	60.0	38.4	60.0*
Subject 170. Motor Vehicle Technicians	74.7	59.5	91.6
Subject 193. Mech. Eng. Craft Practice Part II	81.1	54.1	100.0

\* In these two subjects the project was without an international expert for the last six months of the training.

**Note:** U.K. results are for year 1963/64 as 1964/65 was not available.

# APPENDIX 0.4

## City and Guilds Examinations May/June 1966 Comparative Results

Course and Subject	Percentage Passes		
	U.K.	Overseas	I.L.O.
51. Elect. Inst. Work Course "C"	71.8	47.9	100.0
58. Electrical Fitters	60.4	67.9	91.7
66. Sheet Metal Work Adv. Craft Cert.	68.9	47.1	87.5
74. Welding (Gas) Adv. Craft Cert.	71.6	23.3	60.0
74. Welding (Electric) Adv. Craft Cert.	64.6	41.4	61.5
80. Carpentry and Joinery Adv. Craft Cert.	71.9	30.6	90.0
82. Brickwork Adv. Craft Cert.	68.8	35.3	40.0
85. Painters' and Dec. Adv. Craft Cert. (Ind. and Comm.) F.T.C.	60.03	38.4	37.5
86. Plumbers Work Final Cert.	64.6	50.0	—
103A. Cabinet Making Final Cert.	61.0	27.8	—
170. Motor Vehicle Technicians	79.5	84.6	100.0
193. Mechanical Eng. Craft Practice Part II	71.8	61.7	93.3
293. Mech. Eng. Part I	68.4	60.7	100.0